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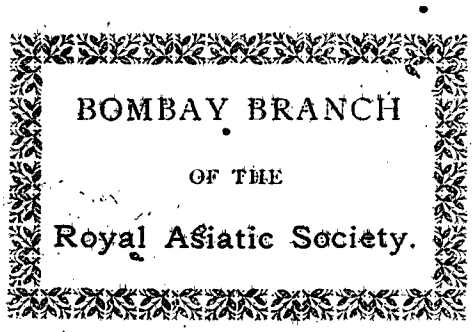

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HEALTH OF THE NAVY.

RETURN to an Order of the Honourable The House of Commons, dated 26 March 1868;—*for*,

A COPY

OF THE

STATISTICAL REPORT

OF THE

108801

HEALTH OF THE NAVY,

FOR THE YEAR 1866.

(*Lord Henry Lennox.*)

Ordered, by The House of Commons, *to be Printed*,
26 *March* 1868.

INTRODUCTORY.

Introductory

ALTHOUGH diseases of a very fatal character were epidemic on most of the stations on which the vessels of the Royal Navy were employed in the year 1866, it is very gratifying to be able to report that, compared with the preceding year, there was a reduction in the ratio of cases entered on the sick-list equal to 54·8, and of mortality to the extent of 1·1 per 1,000 of mean force. There was a trifling increase in the ratio of invaliding.

On the Home Station, cholera was epidemic, and caused much mortality in different parts of the United Kingdom. Portsmouth appears to have been the seaport most severely visited by this malignant disease. In the Home Force the prompt preventive measures taken with respect to it were attended with the best results. Only fifteen cases altogether occurred in the service afloat; and of these, the great majority contracted the disease at their own residences on shore, or while absent from their ships on leave.

Although the beneficial results which are undoubtedly to be obtained from the operation of the Contagious Diseases Act must necessarily be more or less interfered with, in proportion as the measure is more or less limited in its sphere of operation,—there is good ground for believing that

Introductory. even during the year for which the following Report is drawn up, it was producing good fruit. Compared with the preceding year, there was a reduction in the ratio of cases of venereal disease, to the extent of 37·9 per 1,000; 28· per 1,000 being the decrease in cases of primary and secondary syphilis. The mean ratio of cases of syphilis on the Home Station, for the previous five years, was 101·3 per 1,000. In 1866, when the Contagious Diseases Act was in force during the whole year, but in its more extended form for only the last three months of the year, the ratio was 69·1 per 1,000. Whether this reduction was altogether attributable to the operation of that preventive measure it may be premature to say, but it will be at least admitted to be a remarkable and gratifying coincident.

Cholera was epidemic in a large number of the cities on the banks of the Danube; and at Naples, and several other seaports in the Mediterranean. The Maltese authorities, it is stated, dreading another visitation of this pestilence, and profiting by the experience of the previous year, rigidly enforced a thorough quarantine on all vessels coming from suspected ports, and to this, it is considered, the island was indebted for its immunity from the disease. Four cases only occurred in the squadron, three at Naples and one in the Danube.

On the North American and West Indian station, yellow fever seems to have been imported into Jamaica about the month of July, and although it does not appear to have prevailed in an epidemic form, it proved very fatal in the few cases that occurred in the vessels stationed there. A detailed account of this visitation will be found in the report on that station.

On the West Coast of Africa a very extensive and fatal epidemic of yellow fever prevailed in the Bristol, as a result of communication with the Isis, which vessel had towards the termination

termination of the preceding year also communicated the same disease to the Rattlesnake. The history of the epidemic is fully detailed in the report on the Station.

The histories of two extensive and fatal epidemics—one of small-pox, the other of remittent fever—occurring in one vessel, the Octavia, will be found in the report on the Cape of Good Hope and East India Station.

On the China Station there was a considerable diminution in the ratio of cases of those affections against which the Contagious Diseases Act is directed in this country. This, however, was by no means owing to any improvement in the condition of the station with respect to them, but simply to the fact that the vessels of the squadron appear to have been less in communication with the Japanese seaports. It is satisfactory to know that, after repeated and urgent representation, the authorities of that country have at length been induced to permit of measures of a preventive character with respect to these diseases being adopted, which there can be little doubt will, in time, prove of the utmost advantage to the naval force stationed there.

ALEX. E. MACKAY, M.D.

Admiralty, Somerset House,
26 September 1868.

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ERRATA.

Page 43, line 28 of Table } *for* Pycœmia *read* Pyæmia.
„ 45, „ 28 „ }
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„ 48, „ 9 „ *transfer* Diphtheria *to Group following.*

HOME STATION.

Home Station.

THE squadron on the Home Station in 1866 comprised sixty-seven vessels; viz., thirteen iron-clads; one vessel of the fourth rate; one of the sixth rate; thirteen stationary ships; eight drill ships for the Royal Naval Reserve; ten coast-guard ships; seven training ships for cadets and boys; five steam-vessels; two yachts; two storeships; and five training brigs for boys. Of these vessels only fifteen were employed in duties in any way analogous to those devolving upon the different squadrons in active service on foreign stations. These were the iron-clads and the vessels of the fourth and sixth rate, which composed the Channel Fleet. The other sea-going vessels of the squadron were the steam-vessels, yachts, store-ships, and training brigs. These brigs are tenders to the training ships, and are only employed cruizing in the summer season. The returns from fifty-six of the vessels were for the whole year, and from the remainder for periods varying from five to nine months. The mean force corrected for time was 21,200, and the total number of cases of disease and injury entered on the sick-list 20,961, which is in the ratio of 988·7 per 1,000 of mean force, being a decrease, compared with the preceding year, equal to 36·4 per 1,000. Of these 554 were invalided, and 171 died, the ratio of the former being 26·1 and of the latter 8· per 1,000; the invaliding rate being ·3 and the death rate ·9 in excess of the previous year.

The daily loss of service from febrile diseases, including the exanthemata, was in the ratio of 1·2 per 1,000 of mean force; from diseases of the brain and nervous system, ·3; of the organs of respiration, 6·1; of the heart and blood-vessels, ·6; of the alimentary canal, ·9; of the liver, ·2; of the genito-urinary organs, 9·6, of which 7·7 were from syphilitic disease. In 1865 the daily loss of service, from syphilis alone, was in the ratio of 10·8 per 1,000. The daily loss of service from rheumatism was in the ratio of 3·2 per 1000;

Home Station.

from disease of the bones and joints, ·3; of the special senses, ·6; of the skin and cellular tissue, 9·6; from dyspepsia and debility, ·9; and from wounds and injuries of various kinds, 5·7. The average number of men sick daily was 895·7, which is the ratio of 42·2 per 1,000 of mean force, being a slight decrease as compared with the preceding year.

Fevers.—There were 247 cases of continued and remittent fever, 130 of ague, twenty-nine of small-pox, forty-two of measles, ninety of scarlatina, three of varicella, and sixteen of vaccinia under treatment during the year; and of these one was invalided for the sequelæ of primary fever, and eleven died; three were invalided for ague, and two cases of scarlatina proved fatal. Each case of primary fever was, on an average, twenty-three days under treatment, on board ship and in hospital; each case of ague about ten days; each case of small-pox about thirty-three days; each case of measles between fourteen and fifteen days; each case of scarlatina about thirty days; each case of varicella seventeen days; and each case of vaccinia six days.

Continued and Remittent Fevers.—There were five cases of primary fever in the Achilles, one of which proved fatal. With reference to these cases the surgeon* says:

"During the year five cases of continued fever have occurred; one typhus, two enteric, and two of a milder form. In the first quarter of the year two cases appeared, one of which was of a typhus type. At Berehaven amongst the peasantry, and at Castletown, as well as in the workhouse, there were cases of typhoid and typhus fevers, and it was in all probability from one or other of these sources that the patient received the infection. He was a petty officer, of a powerful and strong build, who had been on shore at Castletown, but did not know how he got the fever. The symptoms in this case were marked by great prostration of the nervous power throughout, a dry brown tongue, sordes on the teeth and gums, a weak yet full pulse; and there was great tendency to congestion of the brain, (marked by low muttering delirium), and of the lungs. There were no petechiæ observed on the patient, nor eruption of any kind; no enteric tenderness, no diarrhœa. He was convalescent on the sixteenth day, having been supported through the fever with beef tea, eggs, milk, wine, and brandy. Quinine was also administered to him.

"In the second quarter of the year two cases of fever occurred, one of which, a case of enteric fever, proved fatal. It occurred in the person of a seaman of an exsanguine aspect, who was placed on the sick-list at Castletown on the 9th of May. He had felt unwell for a few days previously. In the course of the disease, on the

* Surgeon George F. A. Drew.

Home Station.

the seventh day, there was congestion and pneumonia of the left lung, which was relieved by the application of turpentine stupes, and sinapisms over the chest, and the exhibition of a diaphoretic and expectorant mixture. At the commencement of the second week (the 24th of May) the tongue became dry and brown, more particularly towards the evening; the pulse accelerated and weaker, with some abdominal tenderness on using pressure; he lay listlessly on his back, and felt no pain. On the 26th diarrhœa supervened, and continued more or less throughout the progress of the case, but no blood appeared in the stools. On the 31st of May the pulse had risen to 130, and was very weak. No typhoid rash could be detected. There was low delirium; the tongue was dry, brown, and cracked; irritability of the stomach appeared, and he died on the 3rd of June, just after our arrival at Queenstown. This patient was retained on board for treatment, as suitable quarters and nursing could not be obtained in Castletown; the inhabitants also were greatly averse to having any cases of fever landed. He was kept apart from the rest of the sick, the discharges mixed with chloride of lime and immediately thrown away, to obviate any risk of the disease spreading amongst the ship's company. He was treated with quinine, wine, and a diet of milk; beef tea, custards, eggs, &c.; and as the prostration became alarming he was given brandy and eggs; but he died from asthenia.

"The other case of fever, which was of the enteric type, occurred in the person of the assistant sick-berth attendant, aged twenty-one, a man of a cachectic appearance, with enlarged tonsils and lymphatic glands. He was placed on the sick-list on the 30th of September, when he stated he had been ill during the three previous days. He had been frequently on leave, and whilst on shore slept at nights with his friends at Millbay, Plymouth; in the close vicinity of the back part of the house, one of the main sewers of the town discharged its contents, and the patient stated that 'often the smell coming into his room on opening the window was awful.'

"This case was treated by the hyposulphite of soda in scruple doses every four hours, under which the tongue soon lost its dry, brown appearance, and became moist, the sulphite appearing to act as a check to the further formation of fever-poison in the blood. Six ounces of sherry daily, and full diet were also given. The action of the hyposulphite in this case appears to me to be sufficiently encouraging to induce one to adopt it in other forms of blood disease, such as scarlatina, variola, &c., in which the increase of the materies morbi appears to depend on the fermentation process set up by the particular poison. I used the hyposulphite, as it was at hand on board, for photographic washing, but I should have preferred the sulphite. The sulphurous acid gas is spoken of in a favourable way, and has been used with good results by Dr. Dewar, of Edinburgh, in these cases, and in the treatment of the cattle plague, which appears to be a blood disease,—and who has written a pamphlet on the subject. In the case just alluded to, the patient remained in a state of debility for some time after he had resumed light duty in the sick bay, and he was eventually sent to Plymouth Hospital on the 20th of November. Whilst there a secondary

Home Station.

syphilitic eruption, psoriasis, made its appearance, which may account for his continued cachectic state after the fever had disappeared."

There was a single case of fever in the Asia. It was of the continued type, and the subject of it was twenty-six days under treatment. He was a servant employed in a gun boat, a tender to the Asia, where he had been much exposed to wet and cold. The chief symptoms were severe lumbar pain, headache, and depression. The case was not one, however, of much severity. The acute febrile symptoms subsided in eight days, but he continued debilitated for some time.

Two cases of primary fever appear in the returns from the Bellerophon, but it is not possible to ascertain of what type they were, or whether they were not cases of ague.

Two cases only of primary fever appear in the returns from the Black Prince, but in reality there were three, the third having been sent into hospital from the shore as a case of diarrhœa, but proving to be a virulent case of enteric fever, and terminating fatally. The surgeon* of the vessel says:—

"During the summer and autumn months there was a fever of a low type prevalent on shore in Queenstown, and although many of the ship's company must have been frequently exposed to the contagion, only three cases occurred amongst them; two of which, only, appear in the Nosological Table; the third being entered as diarrhœa, and sent to hospital as such, but turning out afterwards to be typhoid fever, and ending fatally. This was the case of a seaman belonging to the Gipsy (tender). He had been ill on shore for some days, and had in consequence broken his leave, and, as is customary in such cases, he sent off a medical certificate which stated that he was dangerously ill from an attack of English cholera. He was accordingly visited on shore, and found to be, as the certificate stated, suffering from diarrhœa, with cramps in the limbs, and attended with much debility. The house in which he was living being in one of the most unhealthy localities in Queenstown, it was deemed expedient to have him removed at once to the Royal Naval Hospital at Haulbowline."

It is utterly impossible to form any opinion as to what the disease in this case really was. The only information furnished by the hospital return is, that the man "was so ill on admission that he died next day of typhus fever."

There were five cases of primary fever in the Boscawen, four of which are classed as continued, and the fifth as gastric fever. Two of the cases were of considerable severity apparently,

* Surgeon George Moore.

parently, and followed by a protracted period of debility, but as they were sent to hospital soon after being attacked, but few details are given in connection with them. Home Station.

The three cases of primary fever in the Brilliant were of an ephemeral character, and the same may be said of four out of five cases that occurred in the Britannia. The fifth case occurred in the person of a man who belonged to the Dapper, tender to the ship, who was taken ill at Devonport, where it is supposed he contracted the disease when the Dapper was refitting.

There were five cases of primary fever in the Caledonia, with reference to which the surgeon* says:—

"Five cases of continued fever were entered on the sick-list. In two of the cases symptoms of that not uncommon accompaniment, pneumonia, supervening on the second day, they were discharged to hospital. The third case sent to hospital was complicated with bronchitis. In this case the man had been on leave at Portland. A few days after his return well-marked febrile symptoms set in, accompanied by much prostration. The indications of bronchitis did not manifest themselves until the fourth day. In the other two cases treated on board, one was almost ephemeral in character, while the other evinced great indications of prostration, accompanied by slight evidence of pneumonia at the base of the lungs. In the treatment of these cases stimulants were freely administered."

There were thirty-one cases of primary fever in the Cambridge, twenty-six of which are classed as febricula, and five as continued. The average duration of each case of febricula was rather under five days. The majority of the cases of the continued type were discharged to hospital. In most instances they had been taken ill when on shore on leave, and being seen at their lodgings were at once taken to hospital from thence. In Table IV. a death from primary fever appears in connection with this vessel. It occurred in the person of a seaman who contracted the disease when on leave, and died of typhus fever, it was certified, at his lodgings after ten days' illness.

There were five cases of primary fever, said to have been of the continued type, in the Canopus, but of what character they were it is impossible to ascertain from the returns of the ship. They were all immediately discharged to hospital. A death from fever appears in Table IV. in connection with this

* Surgeon Thomas Breen.

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this vessel. It occurred in the person of a petty officer who had been discharged to Plymouth Hospital, on the 27th of December 1865, with fever and pneumonia. He had been ill for days before being sent to hospital. His illness was ascribed to getting wet while washing decks. In hospital all his symptoms increased in severity until the thirteenth day of his illness when there was some improvement. On the following day the expectoration suddenly became purulent, there were evident signs of effusion into the pleura, with great dyspnœa, and he died on the twelfth day after admission to the hospital. On post-mortem examination of the body, the lungs were found to be adherent to the costal pleura by bands of recent lymph, and there was a collection of fluid in the right pleural cavity. Both lungs were hepatized, the right throughout, with a large abscess in the middle lobe. In the left lung the inflammation was confined to its lower half. The heart was fatty. There were two patches of enlarged and inflamed peyers glands in the small intestine, but no ulceration.

There were two cases of primary fever in the Castor; one of which appears to have been of considerable severity, the patient having been fifty-five days under treatment. The severity of the attack is said to have been probably dependant upon the miserable locality in which the man lived, which was in the low town of North Shields, and is described as a disgustingly filthy and overcrowded locality on the right or north bank of the Tyne.

Six cases of primary fever appear in the returns from the Cumberland and Sheerness Naval Barracks, the men in which are borne on the Cumberland's books. They appear to have been of very little consequence as little or no reference is made to them.

There were five cases of primary fever in the Dasher, three of which are classed as febricula, and two as remittent. The average duration of each case of febricula was about ten days. One case of remittent fever was only four days on the sick-list, but the other was twenty-nine. A death from fever appears in the Returns in connection with this vessel. It occurred in the person of a seaman of the Speedy, the tender to the Dasher, who died in Haslar Hospital. The case was a somewhat peculiar one, and more resembled cerebro-spinal meningitis than simple fever. It appears that he was found on the morning of the 29th of November in a state of active delirium.

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delirium accompanied with febrile symptoms. The pupils were insensible to the light. He could not be prevailed upon to open his mouth; the tongue was coated; the pulse rapid, and there was a slimy exudation from his mouth. On the following day the pulse was under sixty. He had spoken a little but was much confused. On the 1st of December he seemed a little better, but the pulse was slow. On the 2nd he had a severe fit about noon, during which the convulsive movements of his limbs were so violent as to require several men to hold him down, and in the afternoon he had four or five fits at half-hourly intervals. The pulse was quiet, but a little more frequent than in the morning. On the 3rd the pupils were dilated, he had about forty fits, and was evidently sinking. The breathing was heavy and the chest filled with mucus. The face was covered with cold perspiration. In this condition he remained until 3.30 a.m. of the 4th, when he expired. Unfortunately no post-mortem examination of the body was allowed.

There were seven cases of primary fever in the Dauntless, and of these, three being of a mild character were treated on board. Of the remaining four which were sent to hospital, one became very soon complicated with disease of the lungs, two presented in their early stage indications of a low type, and the fourth was attacked at his own residence on shore.

There were two cases of primary fever in the Dee, but they were of a trifling character.

In the Defence there were three cases of primary fever, all of which are classed as typhus. The surgeon* says with reference to them:—

"Three cases of typhus fever are alluded to in the Nosological Table, but they refer to only two patients. The following are the particulars in connection with them. A midshipman was attacked on the 19th of January with rigors, pains in the limbs, headache, and vertigo. The skin was preternaturally hot; the pulse accelerated and the tongue clean. On the following morning there was an increase of headache and heat of skin. On the 23rd there was a decided change for the worse. The face was much flushed; the skin very hot and dry; the pulse quick, small, and weak; the tongue brown and dry, and there were sordes in the teeth and gums. From this date the disease exhibited well-marked symptoms of typhus fever, although unattended with any eruption. During the progress of the case epistaxis occurred several times, and there was slight

* Surgeon C. F. O. Courtney.

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slight delirium for several nights; but the patient, throughout even the worst period of the fever, was always sensible when spoken to. On the 8th of February the febrile symptoms began to abate, and on the 10th the patient was quite free from pain. During the first few days of his illness, the treatment consisted in small doses of Hydrarg. c. creta, and refrigerants. This treatment was, however, soon discontinued, and wine, brandy, beef-tea, arrowroot, and stimulating medicines were administered, and anodyne draughts given at bedtime. At the first, his head had been shaved, and cold evaporating lotions applied. During his illness he was confined to the captain's fore cabin, as we could get no proper accommodation for him in the village of Rathmullan. On arriving at Queenstown on the 18th of February he was sent to Haulbowline Hospital. He was then convalescent.

"The other case occurred in the person of a seaman who was placed on the sick-list on the 23rd of January complaining of pain in the left hypochondrum accompanied with rigors and flushes of heat. On the 27th of the month the disease assumed all the principal characteristics of typhus fever, the patient complaining of extreme weakness and vertigo, the skin being hot and perspiring; the pulse quick; the tongue covered with a moist white fur, and the sleep disturbed. There was no eruption on the skin. Aperient medicines, refrigerants, and diffusible stimulants were given, and a liberal diet, with wine and brandy administered. On the 31st of January he was sent to sick quarters at Rathmullan. While at sick quarters he progressed favourably, and about the 8th of February the febrile symptoms began to subside. As the ship was about to leave Lough Swilly for Queenstown, and the sick quarters at Rathmullan were very bad indeed, the patient was removed to the ship on the 15th for a passage to Queenstown. On the 18th he was sent to Haulbowline Hospital. Although convalescent it appeared judicious still to adhere to the term typhus fever in sending him to the hospital."

Elsewhere he remarks:—

"The disease was very prevalent in the county of Donegal, and there were several deaths from it in the neighbourhood of Rathmullan, within two miles from where the Defence was anchored. Although the disease is eminently contagious and infectious, it is somewhat difficult to account for its appearance on board the ship, more especially as the first person attacked was a very young officer who seldom visited the shore; and when on shore was not so likely to visit fever haunts as the general run of the ship's company. It must, however, be confessed that the neighbouring village was a locality in many respects highly favourable for the generation of such febrile complaints; the streets being without channel drains, stagnant pools of water close to the houses; revolting and unwholesome smells whenever the streets are not washed by heavy rains; backyards uncleansed, and filth even trickling from them into the open streets, into which the house nuisance is flung unsparingly night and day. For the most part the houses have only two small rooms, and often cattle and human beings sleep together in them. When

When such is the neglect of sanitary arrangements, it can be no wonder that fevers are generated and often spread with alarming and fatal rapidity."

There were eight cases of primary fever in the Duke of Wellington, four of which were sent to hospital, as a precautionary measure. They do not, however, appear to have been of much importance. The same may also be said of twelve cases of primary fever in the Excellent, the average duration of each being only four days.

In the Fisgard there were seven cases of primary fever; and in the Fox, ten. In both vessels the type was ephemeral.

There was only one case of primary fever in the Frederick William, but it proved fatal. It occurred in the person of a seaman who was taken ill while on shore on leave, and brought on board labouring under the disease. He at first complained of frontal headache, with lassitude and loss of appetite. His skin was slightly hot, and his tongue coated, but otherwise the symptoms were not urgent. Two days afterwards (on the 25th of July), it was reported by the surgeon* of the ship, that he had passed—

"A restless night. The tongue is white and flabby; there is much thirst; he is very shaky and trembling all over, but complains of no pain. The skin is not very hot. He was kept in bed, supplied with cooling drinks, beef-tea, and wine, and he appeared easier, and continued so the next day; but on the night of the 27th he became restless and then delirious, stupid, and slightly comatose, answering questions incoherently. His bowels had been well moved, and he passed water freely. The skin was hot, and the tongue brownly coated, and very dry. He complained of no pain. On examining his surface, the chest and body were found to be covered with petechiæ, and it was evident that the case was one of malignant typhus. He was given wine and ammonia, and at once put into a cot and sent to the Naval Hospital, where he rapidly sank, and died on the fourth day after his admission.

"On making inquiries as to the locality of his lodging, it was discovered to be in a very filthy place in Queenstown, called Old-street, in close vicinity to a slaughterhouse, with an open sewer close by, and at all times crowded by emigrants. No fever was epidemic, nor existing at the time."

With the exception of the cases which proved fatal, there was nothing of much interest in connection with those in the remaining vessels of the squadron. Fatal cases occurred in

* Surgeon C. D. Shephard.

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in the Hastings, Indus, Prince Consort, St. Vincent, and Victory.

The fatal case in the Hastings, was in the person of a stoker, who was placed on the sick-list on the 21st of February suffering from a febrile attack characterised by nausea, vertigo, headache, flushed face, and pains in the back and limbs. He stated that he had been feeling unwell for several days, and thought he had "caught cold." His tongue was coated with a yellowish white fur, his bowels constipated for some days, and he complained much of nausea, but had not vomited. On the following day he still complained of nausea; the tongue was foul, and the pulse 136 and feeble. On the 23rd his symptoms had not in any way improved; the nausea continued, and he had vomited some bilious matter during the night. The pulse was frequent and feeble. In this condition he was discharged to the Naval Hospital at Haulbowline, where he died on the 4th of March. No particulars of his case in hospital can be found, but while there the fever was classed as typhus.

In the Indus a stoker was placed on the sick-list on the 12th of July, with general pyrexia, and other symptoms indicative of an incipient attack of fever. On the following morning the symptoms, though somewhat subdued, were still present; his pulse was quick, the eyes suffused, the skin hot and dry, the tongue loaded, urine scanty and high-coloured, and he complained of headache. He was accordingly at this stage discharged to the Naval Hospital at Plymouth, where he died on the 18th of July. In the report from the hospital, it is stated that he had been ailing for a fortnight, but continued at duty until the day previous to his going on the sick-list. No diarrhœa occurred while he was in hospital. He sank suddenly on the fifth day after his admission. On post-mortem examination of the body, the glands of the ileum, both solitary and agminated, were found enlarged, ragged, and ulcerated. There was recent peritonitis, but no perforation of the bowels.

The fatal case in the Prince Consort was one of some interest. It is described by the surgeon of the ship,* as —

"Continued fever, with meningeal inflammation, apparently a sporadic case, without clear history of infection, &c. It occurred in the person of a seaman, who presented himself on the 2nd of April, complaining

* Surgeon Stephen Bowden, M.D.

complaining of pain in the right side, somewhat increased on deep inspiration, headache, and shivering. The tongue was furred and dryish, the skin hot, the pulse frequent and jerking. He stated that he had been unwell for some days with a 'cold,' but that the severer symptoms came on the preceding night, preventing sleep.

"On the following day the headache was severe, and he was averse to answering questions. He stated that he did not sleep, but that he was quite free from cough or pain in his chest. The febrile symptoms ran high. The pulse was frequent (100) and sharp. The tongue much coated, with prominent red papillæ. The bowels were open. He had been sick on the previous day."

The report goes on—

"April 4th, frontal headache still very severe, and he did not sleep. Face and conjunctiva not suffused nor congested. Vespere. Pain in the head very much increased. Bowels not well open. (Five grains of calomel and six of compound colocynth pill were given at once, and six leeches applied to the temples.) April 5th, slept during the early part of the night, but towards morning was disturbed by pain in the back of the neck, shooting, he stated, down the spine. This was relieved by a mustard poultice. He now complains of headache. Conjunctiva remaining clear. Pupils act naturally. Pulse frequent, sharp, and jerking. Tongue deeply furred. Bowels torpid. (A black draught prescribed, and effervescing draughts to be given three times daily.) 2 p.m., pain in the forehead became greatly augmented, causing him to utter loud cries. Face suffused and congested. Bowels not open. (An enema of turpentine, castor oil, and laudanum in gruel was exhibited.) After the exhibition of this, which was retained, he became relieved. In the course of the afternoon, sthenic symptoms diminished, and he complained of a sense of debility. Pulse slower and softer. Herpetic eruption made its appearance on the lips.

"It was now determined to send him at once to sick quarters on shore (at Castletown, Berehaven). Some slight ill-defined ephemeral rash on the neck and abdomen was noticed on the 4th, which lasted a few hours only.

"This patient expired at sick quarters on the morning of the 6th. He appears to have retained consciousness to the last, to have had no convulsion nor irregular muscular movement, nor any obvious symptoms to account for his rapid demise.

"A post-mortem examination was made thirty-six hours after death. Rigor mortis not disappeared. Hypostatic congestion very considerable.

"On dividing the scalp, blood oozed out very freely; on removing the calvarium, the sinuses were found to be gorged with blood. The vessels of the pia mater, and the surface of the brain were highly congested, and full of dark blood, giving an appearance as if the venous system had been artificially injected. At the base of the brain, the arachnoid was generally thickened, particularly where it stretches over the pons varolii and at the decussation of the optic nerves. In these situations there was a sub-effusion of sero-purulent fluid. The substance of the brain was less vascular than usual, and its

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its consistence appeared much softer than thirty-six hours' decomposition would explain. There was no effusion in the ventricles. The membranes easily peeled from the cerebral substance.

"*Thorax.*—Left lung very generally adherent to the costal pleura by old adhesions, being diminished in size, corresponding with a flattening of the chest observable from the exterior. The right lung was healthy in texture, but appeared hypertrophied in dimensions. Both lungs were greatly congested, particular in the posterior and depending portions. The lining of the bronchial tubes appeared healthy, and they were free from mucus. The heart and its membranes were normal.

"*Abdomen.*—Liver large and congested, but healthy. Spleen small. Intestines (ileum) deeply injected and congested in patches, but no ulceration was detected on the internal surface. Other organs healthy.

"From an account given by some of his messmates in a former ship, it appears that he suffered from fever, with severe head symptoms, on the coast of Africa, when serving in the gunboat Dart about eight months since; that since his return to England (at Christmas) he had been passing his two months' leave near Queenstown, at which latter place he was subsequently stationed on board Her Majesty's ship Hastings, and from which he joined this ship on the 20th of March. At that place, typhus and typhoid fevers are endemic, and have been particularly active of late. There it is possible he may have contracted the complaint, which remained in a state of incubation until its appearance as above narrated."

The fatal case of fever in the St. Vincent was of the enteric type. It occurred in the person of a boy, who at first, as not unfrequently happens in this form of fever, presented somewhat anomalous, and by no means very urgent symptoms. His attack, in fact, was looked upon rather as one of dyspepsia than of specific fever. He was placed on the sick-list of the St. Vincent on the 30th of October, and discharged to Haslar Hospital on the 5th of November, where he died on the 1st of December. Post-mortem examination revealed extensive ulceration of peyers patches, with general inflammation of the mucous membrane of the ileum.

The fatal case of fever in the Victory occurred in the person of a seaman of broken down constitution from drinking, and excesses of various kinds.

Small-pox.—There were four cases of this form of eruptive fever in the Caledonia. With reference to them the surgeon says:—

"Four cases of small-pox occurred between the 12th of April and the 20th of May. In all these cases well-marked cicatrices of vaccination existed. In the first case the eruption was copious only over

over the face; the second was well marked, but mild; while the third and fourth partook more of the character of varicella. The first case occurring while at sea was, necessarily, detained on board eight days. The three other cases were enabled to be sent at once to hospital. I am at a loss to account for the appearance of the first case, which manifested itself on our homeward passage, four days after our departure from Malta, where I do not recollect hearing that the disease was prevalent. The ship being very much crowded with women and children, soldiers, naval and military invalids, &c., it was impossible to isolate the first case, which was treated apart on one side of the sick bay. The second case occurred ten days after the discharge of the first case to hospital. Unfortunately, this patient had been obliged to be confined to bed for treatment of a contused toe during the time case No. 1 was on the opposite side of the sick bay. The third case occurred fifteen days after the discharge of case No. 1; and five days after No. 2. The fourth manifested itself seventeen days after No. 1. The two last cases were entered on the sick-list after the men had been on leave at Plymouth, and the disease may possibly have been contracted at that port."

There were single cases of small-pox in the Cambridge, Canopus, Indus, Liverpool, Prince Consort, Royal Adelaide, Royal George, St. George, and Wellesley; and in the Cumberland and Duke of Wellington, in each two cases. In the majority of these cases the attack was exceedingly mild, the patients being protected by previous vaccination. Small-pox appears to have been very prevalent in Plymouth and Portsmouth, and in Sheerness it was epidemic.

The vessel in which there was the largest number of cases of small-pox was the Prince Albert, in which there were eleven entries on the sick-list for this disease. The vessel at the time was lying at Plymouth, and the surgeon* says:—

"On the 22nd of March a seaman, after having been on the sick-list for three days, presented an eruption of small-pox. He had been on shore on leave, but it was impossible to determine what locality he had contracted the disease in. He was removed to the Royal Naval Hospital for treatment, and from that time to the end of the month eight other cases presented themselves, and were likewise removed to hospital. It was then discovered that the men attacked had been in the habit of frequenting a public-house in Stonehouse, and that other men belonging to different ships in the harbour, who resorted to the same place, had likewise contracted the disease. By an order from the authorities on shore a number of policemen were stationed in the locality to prevent the men going there, and in a short time the disease disappeared. On board, the men suffering from

* Surgeon Daniel Finucane.

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from the complaint were placed in the sick bay of the hulk Vigo when the premonitory symptoms occurred, and removed to hospital when the disease developed itself. The ship's company and officers were hulked on board the Vigo, and the Prince Albert scrubbed, washed with disinfecting fluid, and then thoroughly repainted. During the continuance of the disease it did not appear that the infection was propagated on board, as not more than two men belonging to the same mess were attacked, and not one of the officers. All the men attacked had been vaccinated, and only two men in the ship (stokers) presented themselves, when an examination was made, who had not distinct cicatrices. They were re-vaccinated. Only one case of any great severity took place, that of a leading seaman, who had three large cicatrices; but the symptoms were so severe on the second day, that although the eruption had not developed itself, it was thought prudent to send him to hospital. This was the only case of confluent small-pox amongst the entire number attacked, all with this exception presenting a very mild form of the disease, and in this case convalescence, although protracted, was very favourable."

Measles.—Forty-two cases of measles were under treatment during the year, of which thirty-two occurred in the Britannia, the training ship for cadets at Dartmouth. With reference to this epidemic, the staff-surgeon* says:—

"Rubeola found its way on board the ship on the 4th of May. The two first cases were among the ship's company, and they were at once placed under the care of the surgeon and agent at sick quarters. The first among the cadets occurred fourteen days after the first of these two. It is not surprising that the disease appeared in the ship, for it had been prevailing extensively in Dartmouth for some time, and we had established medical visitations among the crew and their families on shore, and wherever the disease existed the man was kept on board, and his house put in quarantine by the people of the ship.

"All the cases were landed as soon as detected, and as a rule they were of a mild type. In addition to this removal of the diseased with their effects at once, all the bedding on board had extra airing, the ships were aired and ventilated as much as possible, and the sleeping accommodation on board the Britannia was increased by moving a number of hammocks from the orlop to the fore part of the lower deck. It appeared that among the 219 cadets on board at the time, 183 were believed to have had the disease. Of these, seven were attacked; while of the thirty-six who had not suffered previously, twenty-four were attacked. One of these latter was taken ill at the sick quarters while he was under treatment there for another complaint.

"The last case was landed on the 13th of June, and all made good recoveries."

The

* Staff Surgeon S. S. D. Wells.

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The staff-surgeon* in charge of the Cadets' Sick Quarters makes the following remarks on these cases :—

"During the Midsummer quarter rubeola appeared, the total number of cases under treatment being thirty-one. The first case appeared on the 18th of May, and the last on the 13th of June. In the majority the rash was developed well, and in many the entire body was thickly covered. Happily, only two cases had lung complication. In the first of these pneumonic symptoms coming on, the progress of the disease was arrested in its early stage. The rash in this cadet came out well. In the second the rash showed itself slowly, indistinctly, and very irregularly; occasionally threatening over the forehead, suddenly disappearing, and then over the chest and likewise disappearing, after showing in a very slight, irregular, manner. He was first attacked with well-marked symptoms of cynanche trachealis, followed by bronchitis, attacking the upper lobes of both lungs, with slight congestion. The cough was most distressing and long-continued, threatening suffocation. After a period this was followed by the expectoration of a quantity of bloody mucus, and after a longer interval, of muco-purulent sputa, streaked with blood. During this period he was well-supported, and carefully watched. Bran and vinegar poultices to the throat gave great relief. He was kept in hospital until all traces of the disease or its sequelæ had entirely disappeared. A cadet who had been admitted for cynanche tonsillaris on the 18th of May, and after ten days' treatment was on the point of returning on board, was attacked with rubeola. The longest period of treatment for this disease was twenty-six days; the shortest, eight, which was in a singularly mild case."

There were two cases of measles in the Caledonia, and single cases in the Canopus, Fisgard, Hector, Helicon, Implacable, Lion, St. George, and Saturn. There was nothing of a noteworthy character in connection with these cases.

Scarlatina.—Of ninety cases of this formidable exanthem that were under treatment during the year, seventy-seven occurred in the form of an epidemic, on board the Boscawen, the following particulars connected with which are by the staff-surgeon† of the ship :—

"The ship still remained in Stokes Bay, and had scarcely got clear of diarrhœa, when scarlatina made its appearance among the boys. The first case occurred on the 16th of August, from which time to the 19th of September, when the epidemic finally ceased, seventy-five cases were sent to hospital. Only one man was attacked.

"In

* Staff Surgeon J. T. U. Bremner, M.D.
† Staff Surgeon Joseph Henderson, M.D.

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"In the previous quarter there had been two cases of this disease in the persons of the lamp-trimmer and the shoemaker, both of whom lodged on shore at Southampton, who were sent to hospital on the 16th of May and the 9th of June, returning on the 4th and 21st of July respectively.

"Whether an individual, after a long detention in hospital, repeated warm bathing, with scrupulous fumigation, and cleansing of his clothing and bedding, could possibly have originated an epidemic which did not break out until twenty-six days after his return, is a matter which admits of considerable doubt, and cannot, in the present instance, be satisfactorily settled; for although the boys had not been landed for a month, the men were allowed their usual leave from the 1st of August, and the poison may have been introduced in this way, since zymotic disease is common enough in the localities they are in the habit of frequenting; but on this point there is no evidence, and my own impression is, that the disease proceeded from the men referred to above. It is remarkable that the first of those two cases was sent back to hospital suffering from simple continued fever, in company with the first case of scarlatina.

"As soon as it became manifest that the cases were not sporadic, the ship was brought into Portsmouth Harbour, and placed alongside a hulk, to which the crew were transferred. Every part of the ship, the bedding, clothing, &c., were then thoroughly fumigated, and the fumigation was repeated on several occasions during the progress of the disease, while the boys were distributed over several of the ships in ordinary, to give them increased sleeping accommodation. When additional space became available, a careful inspection of the boys was made, when it was found that out of 350, there was scarcely one who had not more or less congestion of the fauces, together with an elongated and inflamed condition of the lingual papillæ, in most, confined to the tip and margin, but in some, spreading along the dorsum. The taint, in fact, was all but universal, so that any attempt at separation would have been useless. It only remained, therefore, to watch for the occurrence of decided cases, and to proceed with sanitary measures.

"Some of the early cases were severe, with vivid general rash, very sore throat, and intense heat of skin; and two of these died in hospital; but the majority were mild in their progress, though often commencing sharply and suddenly. Many were seized, while at work, with headache, pallor, and prostration, vomiting, slight diarrhœa, and pain in the stomach, followed by more or less fever. As the epidemic progressed the initial symptoms were milder, and diarrhœa was not present. Latterly, there were simply debility, headache, and rapid pulse.

"There was always marked inflammation of the fauces, and in some, swollen tonsils, but ulceration was not observed in any. The tongue almost invariably presented the characteristic strawberry appearance.

"The eruption varied from vivid general redness to a faint rash, or simple mottling of the face, neck, and chest; in many there was no eruption at all, at least prior to their leaving the ship. The eyes were often tender, and the nostrils were usually inflamed.

"The

"The following is a list of the cases as they occurred on each day:

	Cases.		Cases.
August 16	1	September 1	4
„ 20	3	„ 2	3
„ 22	2	„ 3	3
„ 24	2	„ 4	8
„ 25	1	„ 5	12
„ 26	5	„ 6	3
„ 27	5	„ 7	3
„ 28	8	„ 8	2
„ 29	1	„ 15	2
„ 30	2	„ 17	1
„ 31	2	„ 19	2

From time to time a minute examination of all the boys has been made. On the last occasion it was found, that the peculiar condition of the tongue previously described, had in most instances disappeared, but in some it still existed in a minor degree about the tip. The congestion of the fauces also, so general in the first instance, no longer existed.

"The cases which occurred on the 19th of September were the last. The quarantine which had been maintained from the beginning, was taken off on the 3rd of October, and the boys were allowed to proceed on three weeks' leave. Thirty-six have returned from hospital, and thirty-seven remain. I have not heard of the occurrence of any unpleasant sequelæ. The ship is being painted, and lime-washed where it is necessary. The holds have been cleared and whitewashed, and a re-arrangement of the tanks has been made, so as to make the floor of the ship more accessible; ventilation below has also been much improved: chloride of zinc, and gaseous chlorine have also been freely used. The Boscawen has at all times been faultlessly clean, and in that respect no improvement is possible.

"It may be right to add a few remarks respecting fumigation. In the first instance chlorine was used in the holds, bilges, &c., and sulphurous acid gas between decks. Subsequently, the latter was employed exclusively in every part of the ship. The clothing, blankets, bedding, &c., were hung on lines along the various decks, the ports were closed, and all the hatches except two, battened down. On each deck six earthen crucibles had been distributed, each imbedded in a bucket of sand as a precaution against fire, and containing about two pounds of sulphur, which was ignited by dropping in some red-hot cinders. It was necessary to commence below, and to pass along rapidly, as the atmosphere soon became irrespirable. Finally, the remaining hatches were battened down, and everything was kept closed for seven hours. By placing beforehand, pieces of litmus paper in remote situations, it was found that the gas had penetrated everywhere.

"The sulphurous acid, although one of the oldest disinfectants, is still probably one of the best. It is cheap and manageable, and the material is procurable everywhere, which is no small recommendation.

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"The Boscawen has had her station changed from Southampton to Portland. As a precautionary measure, I have recommended that no new entries should be made for three weeks after the removal of the quarantine, and that the boys who have been on board the Tender, should not be allowed to return until the same time has elapsed."

There were three cases of scarlatina in the Excellent; two in the Lion, and single cases in the Dasher, Ganges, Hastings, Helicon, Impregnable, Lord Clyde, Prince Consort, and St. Vincent. In the great majority of cases, the disease was of a very mild nature, but in one or two it was severe. One of the cases in the Lion was of this description. It occurred in the person of a serjeant of marines, and was complicated with formidable head symptoms. The source from whence the infection in this case was derived, could not be traced. The man had a wife and family living on shore, whom he was in the habit of visiting nearly every day; but, it is said, no case of that form of eruptive fever had been known in the town of Greenock for some months previously. In a town like Greenock, however, information of this kind is at the best of a very questionable character.

Diseases of the Brain and Nervous System.—There was a trifling reduction in the ratio of cases coming under this head, compared with the preceding year, and the same may be said of the invaliding rate; but the death-rate was slightly higher.

Two deaths from disease of the brain occurred in the Impregnable. One of these occurred in the person of a boy who was put on the sick-list on the 9th of November with symptoms of a mild febricula, apparently uncomplicated with any serious disease. He was freely purged on that day by the action of medicine; slept well during the night, and next day presented no untoward symptoms. On the contrary he was in good spirits, and partook with relish a mild nutrient diet. In the evening, however, he complained of frontal headache; the pulse and heat of skin were normal. His bowels were relaxed during the day, and at 3 a.m. of the 11th, it was found that he had an accession of cerebral symptoms. The pulse was quick and jerking; the pupils slightly dilated, and sensible to light; the heat of skin natural, excepting that of the forehead and face, the latter being slightly flushed. He was partially conscious, and asked for water to drink. The hair was cut short, and cold was applied to the head. Two drops of croton oil were also given. The case

case continues to be thus reported by the staff surgeon* of the ship:—

"3.30 a.m.—Became restless, with intervals of quiescence. The head was shaved, and a large sinapism placed on the nape of the neck. Blisters were applied to both temples, and a continuous application of cold was made to the shaven scalp.

"4.20 a.m.—Not so restless as before, but the pupils are dilated, and insensible to light. Pulse fast and weak. Right eye affected with slight strabismus; sinapisms to be applied to the inner side of both thighs. 5.30.—Became extremely restless, tossing about in bed, and moaning. The flexor muscles of the fingers and thumbs occasionally strongly contracted. Face much flushed. Head kept cool by wet towels continually applied. 6 a.m.—Pupils widely dilated; breathing became stertorous; profound coma. Died at 6.30 a.m., 11th November."

A post-mortem examination of the body was made at the Royal Naval Hospital on the next day, when the following appearances were observed:—The body was muscular and well-formed. The dura mater was highly congested. The surface of the brain was covered with lymph, which was more abundant, however, on the left side than on the right. The dura mater was adherent in several places, lymphy exudations extending to the base of the brain. Half an ounce of turbid fluid was found at the base of the skull. Inflammation and exudation much greater on the left than on the right side. The structure of the brain was of normal appearance. There was a small quantity of fluid in the right ventricle. The choroid plexus was slightly congested.

The other fatal case in this ship was of even a more rapid character. It occurred in the person of a boy who presented himself on the morning of the 31st of October, complaining of pain in the eyes and of thirst. His countenance was slightly pale, his pulse quick; the tongue slightly furred and dry. The countenance was heavy and stupid-looking; the pupils were sensitive to light. In this condition he was discharged to hospital on the same morning, and from that establishment the following report was made:—

"This case, the history of which is not so complete as could be desired, was admitted at 11.30 a.m. of the 31st of October, and died two-and-a-quarter hours after. He was seen on the same morning for the first time by the medical officer of his ship, and was then in a semi-comatose condition, complaining of pain in the head. On admission,

* Staff-Surgeon William Banks Fegen.

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admission, he was pallid, with sunken features; restless; unable to be roused; there was deficient heat of body; the pupils were natural, but there was photophobia. On external heat being applied, reaction was established, his face flushed; he had semi-epileptiform twitchings of the limbs, and was extremely restless; then became comatose, with stertorous breathing, widely-dilated pupils, and inability to swallow. He died at 1.45 p.m. On examining the brain, the left hemisphere was found bathed in pus. At the base there was lymphy exudation, which extended to the right side to a slight extent. The mastoid cells of the right temporal bone contained purulent fluid."

Thirty-seven cases of delirium tremens were under treatment in the Home Force during the year, one of which proved fatal in hospital. Three of these occurred in the persons of commissioned officers; two in warrant officers; six in petty officers; one in a leading seaman; four in able seamen; four in stokers; twelve in marines; one in a bandsman; and in four cases the returns are not given.

With reference to the treatment of this disease, the following remarks are by the Inspector General* of the Royal Naval Hospital at Stonehouse:—

"Four cases have been received and discharged cured; in all the same plan of treatment has been adopted, viz., small doses of tartarised antimony, with plenty of nourishment, and no restraint, only careful supervision. In all sleep has been obtained without recourse to a dose of opium (in one case, that of an officer, there had been no sleep for six days and nights), and the period of convalescence has been extremely short."

Diseases of the Organs of Respiration.—There was a slight increase in the ratio of cases, and of invaliding under this head as compared with the preceding year, but the death-rate was lower. There were 414 cases of inflammatory disease under treatment, twenty of which were invalided, and eleven terminated fatally. There were also 178 cases of pulmonary consumption, of which ninety-two were invalided, and thirty-nine proved fatal.

Under the head of cynanche two deaths are recorded. These were well marked cases of diphtheria, one of which occurred in the Ganges, and one in the Pembroke. One of the cases in the Ganges was a boy who was placed on the sick-list on the 6th of May, with acute cynanche tonsillaris, which soon passed into diphtheria. When first seen he had œdema

* Inspector General John G. Stewart, M.D.

œdema of both lower eyelids, a scarlet, velvet-looking redness of the fauces and uvula, some shivering, and a quickened small pulse. He was put to bed; the throat enveloped in flannel; dilute perchloride of iron was applied to the fauces; chlorinated gargles were employed during the day, and ten grains each of sesqui-carbonate of ammonia, and chlorate of potash, with five grains of nitrate of potash, given four times daily. He was given animal soups and farinaceous food. On the 8th of May he was given port wine and milk with eggs, and the saline treatment was persevered in. On the following day, the depression being relieved, the saline draughts were taken only three times daily. On the 10th of May the port wine was increased to a third of a bottle in the twenty-four hours. On the 12th of May the saline was omitted; a long tape-like piece of false membrane was coughed up. Much pain in the front of the thorax was complained of, and there was some dyspnœa. After the first three days there was a tawny appearance of the uvula, and great pain in deglutition, but not so much swelling as to prevent swallowing. He was now given half-drachm doses of the tincture of the perchloride of iron in three ounces of water, four times daily; likewise beef tea, eggs, milk, and port wine. Hot fomentations were applied to the thorax, and he used inhalations of port wine and decoction of bark. On the 13th of May the breathing and swallowing were difficult and painful; at 4 p.m., after taking a basin of beef-tea, he was seized with tetanic spasm of the lower jaw, and he died early on the following morning; the œdema of the eyelid continued to the last. The report of the autopsy is by the surgeon* of the ship, from whose more extended report the above history is somewhat abridged.

"The head and abdomen not examined. Cadaveric rigidity was complete; body spare; no marked emaciation; the fibres of the pectoral muscles of a light venous hue. On raising the sternum the exposed portions of the lungs had an anæmic appearance. The serous surface of the pericardium was very pale, but the sac contained no fluid. The heart was empty; its fibres pale. There was some congestion at the posterior and lower part of the lungs; the serous surface was of a reddish tinge, which might be due to position. Where the bronchial tubes entered the lungs a sero-purulent fluid oozed out from the incised surfaces of the lungs. The larger bronchi and trachea were lined with false membrane (maccaroni-like)."

There were several cases of acute cynanche with predisposition

* Surgeon J. Caddy, M.D.

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disposition to diphtheria in this vessel, and one of these was interesting, from the peculiar character of the symptoms by which it was accompanied, and which made convalescence exceedingly lingering. It occurred in the person of a boy who was placed on the sick-list on the 4th of April with acute cynanche tonsillaris, which was accompanied with much depression. There was great swelling of the fauces, with scarlet redness and fibrinous exudation. Under the influence of the treatment to which he was subjected, he improved so far as the acute symptoms were concerned, and the fibrinous exudation was thrown off. He remained exceedingly weak, however, and appeared to labour under some form of paralysis of the larynx and pharynx, as evidenced by the guttural character of his voice, and his inability to swallow solid food. In this condition he was sent to Plymouth Hospital for further treatment. While there his voice is said to have been mumbled out, in barely a whisper; he could only swallow fluids in small quantities; the muscles of the back were much atrophied, and there was general impairment of muscular power. At first he was unable to sit in a chair, but gradually regained power sufficient to walk across the ward. Extensive tubercular deposits were also said to have been detected in both lungs. He, however, recovered, and, after being under treatment in hospital for 131 days, was discharged to duty, and returned to his ship, where he subsequently passed out for general service. Three times during this boy's convalescence he was nearly asphyxiated from the pharynx being unable to perform its duty.

There was a fatal case of diphtheria in the Pembroke. It occurred in the person of an officer's servant, who was placed on the sick-list on the 29th of August, and died on the 4th of September. On the day before his death he spat up a cast of the trachea, nearly three inches long, and an inch and a half wide. Previous to entering the service this lad appears to have suffered great privations, so that he had but little stamina or power of resisting the progress of disease. On the disease being recognised, every precaution was taken to destroy infection, and prevent its communication to the other boys. For this purpose, chloride of zinc, carbolic acid, and Condy's solution were plentifully used, and all other patients were kept away from the sick boy.

Under the head of asthma one death appears. This occurred in the person of a pensioner borne on the books of the Asia, who laboured under chronic bronchitis.

Diseases

Diseases of the Heart and Blood Vessels.—There was a slight reduction in the ratio of cases coming under this head as compared with the preceding, but the death rate was doubled. The ratio of invaliding was precisely the same as in 1865. Of 134 cases of functional and organic disease of the heart, fifty-five were invalided and eighteen terminated fatally. There were also two deaths from aneurism. One of these occurred in the person of a pensioner borne on the books of the Asia. He died on shore of hæmoptysis, and as there was no post-mortem examination of the body, there may be some question as to the precise nature of the disease.

The other fatal case of aneurism occurred in the person of a seaman who was doing duty on board the Enchantress, and who was sent to Woolwich Infirmary from the Fisgard, to which ship he had applied for medical treatment. The report of his case is thus furnished by the Deputy Inspector General* of the Royal Naval Hospital at Woolwich :—

" . . . . . was received here on the 10th of November 1866, through her Majesty's ship Fisgard. The case sent with him stated, that when he presented himself on board the Fisgard, he was exceedingly pale; the face, forehead, and hands covered with clammy perspiration; the pulse very slow, irregular and almost imperceptible, and he complained of intense, pain in the left side, and much dyspnœa. When received here he was still suffering much, but appeared to have rallied considerably after the administration of the stimulants and anodyne which had been prescribed. He complained of præcordial pain, sense of exhaustion, and dyspnœa. He stated that about 6.30 a.m., when washing, he was suddenly taken ill, with a sharp dragging pain in the front of the chest, and præcordial region, and a feeling of great faintness, sensations which he had never before experienced. He stated also, that twelve years ago he had an attack of rheumatism, since which time he had been in good health, never having experienced palpitation or dyspnœa so severe as to unfit him for his ordinary work, although he admitted that his breath has often been very short after any unusual exertion.

On examination, the area of cardiac dulness was increased, the impulse not increased. A loud systolic murmur was audible over the whole of the cardiac region, louder at the base, and at mid-sternum, whence it was transmitted into the larger vessels of the neck. The heart's action was irregular at first, but soon became regular; at mid-sternum the murmur obliterated the first sound entirely, and the second was faint. No fever present; tongue clean, and bowels regular. After a diffusible stimulating and opiate draught

* Deputy Inspector General James Salmon, M.D.

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draught he had a good night's rest until 4 a.m. of the 11th. The pains remitted, and became aggravated daily, but were never entirely absent until the 28th, when he stated that he was free from palpitation, and all pain. Under this condition the following is the report of the examination then made:—"The heart's action is very irregular, and the sounds heard differ at different times. On listening near the right sterno-clavicular articulation, at one time the first sound is faintly heard, and a prolonged murmur accompanies or represents the second sound. At another time the first sound appears re-duplicated with the murmur accompanying the second sound; and again, the rhythm is more natural, but with the murmur always accompanying the second sound; the murmur is heard at the apex near the nipple nearly in the same manner." He continued very well up to the 8th of December, enjoying freedom from any marked paroxysmal pain. On that day he had a paroxysm of cardiac pain, which was accompanied by some symptoms of prostration, to wit, giddiness and coldness of the extremities. On the 9th of December the following report was made:—"No sleep all night; general pains of the body complained of; frequent attacks of vertigo, with transient loss of consciousness; pain and tightness of the chest, and coldness of the extremities. The action of the heart is greatly changed, two beats following each other rapidly, and then a long interval. The pulse presents the same character, and is only 36 to the minute. At 4 p.m., he complained much of sickness and uneasiness in the epigastrium." He continued in this state, and died at 8.50 a.m. of the 11th of December 1866.

Post-mortem examination twenty-six hours after death:—Body well nourished, and presenting the appearance of a strong healthy man. On opening the thorax, the pericardium was found adherent to the sternum. The heart was uncovered by any part of the lung, and appeared to be of large size. The pericardium was free from any unusual quantity of serum, but a considerable quantity had collected both in the thoracic and abdominal cavities. The vessels of the head and neck were much engorged. On opening the heart after removal, the left side was found full of dark blood, with fibrinous clots. A large aneurismal cavity was found to extend from immediately above the aortic valves (which were healthy) for three inches into the wall between the right auricle and ventricle, from the first of which it was separated by a very thin septum. A cul-de-sac extending from this aneurism downwards, opened by a small orifice into the right ventricle directly in the passage between the folds of the tricuspid valve, and presented the appearance from below of a funnel. The orifice, which was sufficiently large to admit a No. 7 catheter, was ragged, and apparently of recent formation, being probably the point of rupture of the aneurism. The lining membrane of the aneurism was paler than that of the aorta, and generally smooth, giving the impression of its being of old standing. At a few points there were patches of atheromatous deposit, evidently recent. The heart when cleaned weighed 1 lb. 15 oz. On removing the skull cap, about three ounces of serous fluid escaped, and the arachnoid was opaque from the collection of fluid underneath. All the other organs examined were healthy."

Diseases

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Diseases of the Alimentary Canal.—There was an increase in the ratio of cases coming under this head, compared with the preceding year, to the extent of 26·4 per 1,000 of mean force; there was also a considerable increase in the ratio of mortality. There was a reduction, however, in the ratio of invaliding.

During the Michaelmas and Christmas quarters of the year cholera prevailed epidemically in England, and caused considerable mortality in Portsmouth and some other seaport towns. Diarrhœa, as commonly happens during the prevalence of that fatal form of disease, was also very common, and no fewer than 1,227 cases were under treatment in the Home force, of which one proved fatal. During the same period fifteen cases of cholera were entered on the sick-list, of which eight had a fatal termination. In view of this alarming epidemic, a memorandum* embodying certain sanitary precautions in regard to cholera, was issued by the Admiralty to Officers commanding Her Majesty's ships and vessels on the Home Station, and to Colonels Commandant of Marine Divisions, and there can be little doubt that to that measure, as well as to the generally watchful care exercised over the various ships' companies, may be attributed the satisfactory result that in a large force, so peculiarly exposed as the Home squadron was, so few cases of the disease were allowed to reach the stage of decided cholera.

The vessels which suffered most from diarrhœa were the Asia, Bellerophon, Boscawen, Cambridge, Cumberland, Donegal, Excellent, Indus, Liberty, and Pallas; those in which cases of cholera occurred, the Asia, Boscawen, Excellent, Hector, Indus, President, Royal George, St. Vincent, and Saturn. As the cases of diarrhœa and cholera were mostly connected with each other, it may be better to consider them together.

There were four cases of cholera and fifty of diarrhœa in the Asia, at Portsmouth. All the cholera, and thirty-nine of the cases of diarrhœa, occurred during the Michaelmas quarter of the year; and with reference to these the surgeon† makes the following observations:—

"From the prevalence of cholera in various parts of England its appearance in this neighbourhood was expected, and some measures were

* Appendix, No. 1. † Surgeon Seaton Wade.

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were taken by the authorities to meet the epidemic, such as the more complete cleansing of rubbish from the streets and courts, flushing the streets, and whitewashing the houses occupied by the poorer classes. In the ships of the Steam Reserve particular care was taken to keep the "heads" and water-closets clean; the ships were more frequently visited by the medical officers, and the men were enjoined to complain on the appearance of diarrhœa. About the end of July cholera appeared in Landport, arriving by way of Southampton. At first it threatened to extend rapidly; in the crowded district of Landport there appeared every condition to favour the extension of the disease; the streets close and narrow, a gutter running in the centre, or on either side, received all the refuse from the houses, and was the only drain; at the back of most of the houses there was a privy, a mere hole without any outlet. And yet, upon closer inquiry, circumstances were found that gave reason to expect it might not be severe. First, the water supply was good and very liberal, though not constant, all being supplied from the waterworks at Farlington; then the houses were for the most part occupied by men who either were or had been in the naval service, and there acquired habits of cleanliness. The many houses I visited were clean; the measures recommended, such as whitewashing, had been adopted, and there was a desire to use every effort to ward off the disease. A large number of the men employed in the Steam Reserve live in this locality." . . . .

"Fortunately we had but few cases of the disease; only four in the whole Reserve. Two occurred on board the Asia, and were sent to hospital in one of the ship's boats; both recovered. One occurred on board the Neptune, was sent to hospital in the same manner, and terminated fatally; and the fourth died at his house, in Landport.

"Fifty cases of diarrhœa were put on the sick-list. Two of severe choleraic diarrhœa were sent to hospital, and recovered; most of the other cases were slight."

With respect to the two fatal cases, it appears that the man who died on shore on the 1st of August, a pensioner, lived in a dirty street in Landport; that his child, six years of age, had died with symptoms of cholera on the 28th, and his wife of evident cholera on the 29th. He was seen by the surgeon of the Asia on the morning of the 31st of July, at which time he had no symptoms of cholera, but was naturally plunged in the deepest distress. In the afternoon of the same day, however, he was atacked with the disease in a very virulent form, and died out the following morning. The man of the Neptune was employed as a ship-keeper. He said he had had diarrhœa for six days, but had made no complaint of it. When brought to the Asia he was in a state of collapse. He was removed to Haslar as soon as possible, where he died on the following day. He was attacked on the 3rd of September.

There

There were seventy-seven cases of diarrhœa in the Bellerophon, some of which appear to have been of a decidedly choleraic character. The majority of them (sixty-two) occurred in the Michaelmas quarter of the year, when the vessel was at Portsmouth. With reference to them the surgeon* says:—

"During the visitation of cholera at Portsmouth last summer, the ship's company escaped in a very great degree. Indeed there was not any case of cholera at all, according to my view; but there were seventy-seven of diarrhœa, and some of them were serious by reason of the severity of the symptoms, some on account of the duration of the disease. There were several cases in which symptoms of collapse had taken place; a leaden hue of the countenance, sunken eyes, a cold clammy skin, and vomiting; and yet I did not feel inclined to return them as cholera. They all yielded to treatment, which consisted in the administration of an astringent and in placing the patient at once in a hot bed. Very soon, by dint of applying warmth, reaction was established, and all recovered. I took occasion to send two cases of chronic diarrhœa to sick-quarters, at Portland. They had resisted all manner of treatment on board, and I thought that a change to the shore was most likely to restore them to health. The six cases which were sent to Haslar were those in which the diarrhœa did not succumb to treatment at once. Vomiting was an attendant symptom in a great many cases, and in these a sinapism was generally applied with a beneficial result. I do not think there was any case in which cramp was superadded."

There were three cases of cholera, and forty of diarrhœa in the Boscawen, and of these one case of cholera proved fatal. The vessel was stationed at Southampton when cholera made its appearance on board, but was almost immediately removed from thence to Stokes Bay. The staff-surgeon in his remarks on the diseases coming under notice in the Michaelmas quarter of the year, says:—

"The most important diseases of the quarter were cholera, choleraic diarrhœa, and scarlatina, which prevailed almost exclusively amongst the boys. During the first half of July, the condition of the ship as to health was very satisfactory. On the 16th, the weather having been for some days very hot and oppressive, with an almost stagnant condition of the atmosphere, there occurred a case of diarrhœa, and on the 17th, another. On the 18th a boy, six months in the ship, was attacked by cholera, and died in hospital that evening. He took ill about 8 o'clock a.m., with vomiting and purging, and rapidly passed into a state of collapse. This was a genuine case of malignant cholera, and hopeless from a very early period.

* Surgeon Nicholas Littleton.

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period. Death took place in thirteen hours and a half. On the 19th there was a second case of cholera, and two of choleraic diarrhœa. One the 20th, one of cholera, and ten of diarrhœa.

"Under the circumstances, it was recommended as the only way of escaping an extensive and probably fatal epidemic, that the ship should be at once removed from what might be regarded as a choleraic atmosphere. Cholera had been for some days in existence at Southampton, with which place constant communication was necessarily kept up, and many of the men slept on shore in localities for the most part crowded and unhealthy; while the position of the ship, moored between mud-banks, and exposed to the emanations from sewage, which, during low water, at this time smelt offensively, was calculated to excite apprehension. On the evening of the 20th, therefore, the ship was towed to Stokes Bay, and it may be at once stated that the result of the change was highly satisfactory, for, although as might be expected, fresh cases of diarrhœa continued to occur for some time, the attacks became gradually less severe, and by the 8th of August the disease may be said to have ceased, only one case having occurred after that date. As regards cholera, there were no cases after quitting Southampton.

"The following is a list of the cases as they occurred on each day:—

July	16	1	Diarrhœa.	July	24	2	Diarrhœa.
„	17	1	„	„	25	3	„
„	18	1	Cholera.	„	26	2	„
„	19	1	„	„	27	3	„
„	19	2	Diarrhœa.	„	31	5	„
„	20	1	Cholera.	Aug.	2	5	„
„	20	10	Diarrhœa.	„	5	1	„
„	21	1	„	„	8	2	„
„	22	1	„	„	18	1	„

"There can be little doubt that the prompt removal of the ship from an infected locality to a more open anchorage and a purer atmosphere, had the effect of preventing an extensive, and probably fatal, outbreak of cholera. In connection with this part of the subject it may be interesting to state that our tender, the Ferret, having eighty boys on board, during the whole of the time had not a single case of diarrhœa. This complete immunity was no doubt due to her having been so little at Southampton, where she only remained from the Friday evening till the Monday morning, the remainder of each week being spent in cruising and exercising outside.

"Altogether there were three cases of cholera (boys), and forty of diarrhœa (two men, and thirty-eight boys). Of the former disease, the only severe case was that which terminated fatally; the two others were much milder; there existed in these vomiting at long intervals; occasional, but not severe, cramps in the abdomen and limbs; a tendency to coldness in the extremities, a small weak pulse, and thin watery stools. Of diarrhœa, the first twenty cases were rather severe, but soon after leaving Southampton the disease assumed a much milder character. The early attacks invariably commenced

menced with vertigo, prostration, and tremor; in two instances syncope occurred. This was succeeded by vomiting, but not to any great extent, and profuse watery purging without much pain. The surface and extremities were usually very cool, the pulse weak and rapid, while the accompanying and subsequent debility was considerable. The later cases were merely diarrhœa of rather obstinate character, without any complication. The three cases of cholera, and five of diarrhœa, were sent to hospital. The others were treated on board.

"When the tongue was nearly clean, the remedies used with the best effect were acetate of lead in pill or solution, with or without opium; or the mineral acids in small and frequently repeated doses. In a few cases in which the tongue was foul, a stimulating emetic was given, subsequently a dose or two of calomel and opium, followed by castor oil or rhubarb; afterwards astringents. The ordinary chalk mixture, catechu and laudanum, did not answer; it caused sickness of stomach, and often augmented the pain. Farinaceous diet was enforced, with nourishment, and in some days wine, during convalescence."

There were forty-eight cases of diarrhœa in the Cambridge at Plymouth, but they appear to have been of a very trivial character, as no notice is taken of them in any of the returns from the ship. They were tolerably equally distributed over the different quarters of the year.

In the Cumberland and the Naval Barracks at Sheerness there were fifty-four cases of diarrhœa, of which forty-one are referable to the crew of the vessel. Thirty-four of these occurred during the Michaelmas quarter of the year, and some of them are said to have been very severe, and of a choleraic type. Cholera was very prevalent for a short time at Sheerness, but happily no case occurred either on board the Cumberland, or in the steam reserve there.

There were forty-six cases of diarrhœa of a trivial character on board the Donegal, at Liverpool. The average duration of each case was between four and five days. The majority occurred during the Michaelmas quarter of the year.

One case of cholera and 121 of diarrhœa appear in the returns from the Excellent at Portsmouth, with reference to which the staff-surgeon* says:—

"In view of the apprehended outbreak of cholera in the summer, all practicable measures of a prophylactic nature were resorted to, and the supplementary precautions issued by the Admiralty were rigidly observed. Unceasing attention was paid by the executive to

* Staff Surgeon Gerald Yeo, M.D.

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to the condition of the holds, heads, shoots, water-closets, &c., and they were continuously cleansed by solution of chloride of zinc, &c., and strict regard was paid to every plan for the preservation of the health of the crew, and cleanliness of the ship. It is most gratifying to record that not a single case of cholera occurred on board the Excellent. The sporadic case noticed took place in the Stork gun-boat, tender to this ship, in the person of an officer of that vessel, and he was removed as soon as possible to Haslar Hospital. It never reached the full phase of Asiatic cholera, and would have been more appropriately returned, perhaps, as English cholera, or choleraic diarrhœa. The case terminated favourably. There are 121 cases of diarrhœa given for the year, of which ninety-four occurred in the quarter ending the 30th of September, or something like 75 per cent. more than the other three periods of the year. The disease prevailed in a mild form, and was in the majority of cases amenable to the ordinary treatment. None of the cases required removal to hospital. The immunity from cholera enjoyed by the crew of this ship is somewhat remarkable, when the general habits of seamen are taken into account, and also when it is considered that the major proportion of this large ship's company sleep on shore every night, and are dispersed throughout the worst localities in the neighbourhood, where the disease is found in its most virulent type."

A case of cholera appears in the returns of the Hector. It was not, however, of the Asiatic variety, but was simply the effect of intestinal irritation, occasioned, it is said, by the man having partaken largely of bad beer and other deleterious matters, when on shore on leave. Under the influence of hot fomentations, carminatives, and anodynes, he made a rapid recovery.

In the Indus, at Plymouth, there were fifty-eight cases of diarrhœa, and one of cholera, and of these one case of diarrhœa and the case of cholera proved fatal. Thirty-seven of the cases of diarrhœa and the case of cholera occurred in the Michaelmas quarter of the year, and with reference to these the staff surgeon remarks:—

"During the third quarter the sick-list was of the usual low average of the summer season, and the diseases composing it were for the most part of a correspondingly mild character. Diarrhœa, however, prevailed during the months of August and September to a rather unusual extent, attributable in some degree to the season, when the people in Devonshire, as a rule, consume a great quantity of fruit, probably from its abundance and cheapness. But the prevalence of the disease might also, to a certain extent, be accounted for by the noxious condition of the atmosphere that invariably precedes and accompanies cholera, which disease, though it did not attack the immediate neighbourhood of Plymouth, yet was epidemic at the time in other portions of the county of Devonshire, and

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and bordering parts of Cornwall. The attacks were, for the most part very mild, and readily yielded to the ordinary astringents and appropriate diet. In compliance with an Admiralty circular directing various sanitary precautions to be observed and carried out in regard to cholera, the whole of the ships and vessels composing the steam reserve and ordinary at this port were thoroughly cleansed with a powerful detergent known as 'Smith's Disinfecting Powder,' and the decks, engine-rooms, holds, ships' heads, and latrine shoots subsequently maintained in a perfectly wholesome condition by the copious use of chloride of zinc. With this view each ship was visited daily and carefully inspected by a medical officer accompanied by a lieutenant, who, at the same time, instituted the necessary inquiries regarding the health of the ship-keepers on board, with especial reference to the existence of any alvine derangements amongst them. And, whenever any men were found to have been attacked with diarrhœa they were at once brought on board the guard-ship for treatment. Probably to these prudent hygienic precautions may be ascribed the high standard of health enjoyed by the officers and men distributed about the harbour amongst the various ships in ordinary, as well as those composing the steam reserve generally. For although, as before stated, diarrhœa did occur, to a certain extent, in excess of the previous years, yet it could not be said to have prevailed in an epidemic form, and only in one instance assumed a choleraic type, and that patient was so attacked whilst residing on shore, and living in a proverbially unhealthy district of Plymouth."

The fatal case of cholera occurred in the person of a man who had recently been paid off from the Devastation, and having been granted the usual period of leave was passing it with his family in the town of Chudleigh, where he was attacked with the disease and died after a few hours' illness.

The fatal case of diarrhœa occurred in the person of a signalman who had suffered for a considerable time from chronic diarrhœa. About a fortnight previous to his death the disease assumed an active form, accompanied by profuse passive hæmorrhage from the intestines, under which he sunk.

In the Liberty, a tender cruizing off Falmouth, there were seventy-two cases of diarrhœa, some of which appear to have been of a decidedly choleraic character, and although, as the medical officer* says:—

"A strict observance of the sanitary precautions as recommended by Admiralty circular 'relative to cholera' failed to remove the disease,"

it is very probable that, in many cases, it prevented it reaching

* Assistant Surgeon S. W. Bean.

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reaching the fatal stage of cholera. The disease made its appearance on the 10th of August in the person of three boys and an officers' servant, and from that until the 23rd, when there were nineteen on the sick-list, the cases increased both in number and virulence. In remarking on this epidemic the medical officer says that some of the cases were—

"Slight, the only complaint being purging; in others there was purging, accompanied with headache and pain of the abdomen, extending over the right hypochondriac, epigastric, and left hypochondriac regions, in no case below the navel. In a few severe cases the above symptoms were accompanied with rigors, cramps of the extremities, and vomiting. In two cases there was complete loss of feeling in the hands and feet. This, however, I ascribe, in a great measure, to their having kept a very cold morning watch previously to their presenting themselves at the sick-bay. I administered half a drachm of aromatic spirits of ammonia to each, and ordered them to be placed in their hammocks, and in two hours I found that the sense of feeling had returned in both cases."

There were fifty-six cases of diarrhœa of a very mild description in the Pallas. The great majority of them occurred during the Michaelmas quarter of the year, when the vessel was employed in the Channel, and the remainder in the Christmas quarter. The average duration of each case was between three and four days. With respect to them the surgeon* says:—

"During our anchorage at Portland and Spithead, in the month of August, cases of diarrhœa occurred, but these of the mildest possible description, would hardly have merited any observation (and some might never have appeared in the Return at all) had we not been threatened with an epidemic of cholera.

"Owing to the prevalence of cholera in some neighbouring ports, and the very stringent memorandum from the Admiralty on the subject, and in the confident belief (from previous experience) that in these parts it is only neglected diarrhœa which merges into cholera, every person presenting himself with diarrhœa or with premonitory abdominal griping pains was at once entered on the sick-list, berthed on the main-deck, apart from the ship's company and contiguous to the sick-bay water-closet, thus insuring, as far as possible, isolation, and the instant removal from the ship of the alvine discharge. This Return, therefore, in one aspect, perhaps gives an exaggerated view of the amount of active disease (as such), but the course adopted was advisedly done, lest a single case, though seemingly slight, might suddenly lapse into cholera. Happily, however, not one of these cases even approached the choleraic form, but being of the ordinary autumnal sort were quickly relieved by a preliminary dose of castor oil, followed by some astringent remedies after its action. A very few cases were a little protracted; which were treated with lead

* Surgeon Robert Creighton.

e ad and opium and other astringents, but it was soon found that small doses of castor oil, with a few minims of laudanum, were much more effective in arresting the discharges."

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A fatal case of cholera occurred in the person of a pensioner employed in the President, the drill ship of the Naval Reserve, stationed in the City Canal, in the east of London, in which district cholera prevailed more extensively and more virulently than in any other part of London. The man had been much interested in the case of a neighbour who had died of cholera on the previous evening, and he appears to have been very much alarmed about the prevailing epidemic. His case from the first was of a very virulent character, and although there was at one time a slight tendency to rally, he died seventeen hours after being seized with the first symptoms of the disease.

A fatal case of cholera occurred in the Royal George at Kingstown, in the person of a non-commissioned officer of marines, who, on the morning of the day of his death, had been on shore with a party of marines at rifle practice. He returned to the ship at noon, and on his arrival on board was seized with purging and vomiting, accompanied by severe and painful cramps extending to the calves of the legs, and to the thighs and muscles of the abdomen. The features were sharpened and contracted, and the whole surface of the body assumed a leaden hue. No reaction whatever took place in his case, although stimulants and heat were assiduously employed, and he sunk eight hours after being on board the ship. Cholera was epidemic both in Kingstown and Dublin.

There were two cases of cholera in the St. Vincent at Portsmouth, both of which proved fatal; one in the person of a marine, a dissipated character, who, in the evening previous to his being seized, had been drinking in a low haunt in Portsmouth. He was suddenly taken ill in the evening, having, however, as he admitted afterwards, been labouring under more or less diarrhœa during the previous part of the day, and being sent to Haslar Hospital, died there early in the following morning. The other case occurred three weeks afterwards in the person of a boy who had not been out of the ship for a fortnight. He also had the premonitory diarrhœa, but did not make it known. He was discharged at once to Haslar Hospital, where he died on the fourth day of the secondary fever.

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There was a case of cholera in the Saturn at Pembroke. The disease was epidemic in the immediate neighbourhood. The man was seized on the morning of the 29th of August at his residence on shore. The case was a very mild one, and he made a rapid and good recovery.

Diseases of the Genito-Urinary Organs.—The reduction in the ratio of cases of all forms of disease coming under this head, as compared with the preceding year, was equal to 42·9 per 1,000 of mean force; the reduction in the ratio of cases of primary and secondary syphilis being equal to 28· per 1,000, and of gonorrhœa to 9·9 per 1,000. There was also a reduction in the ratio of cases of orchitis, which disease is commonly of venereal origin, to the extent of 4·3 per 1,000, so that the total reduction may be said to be entirely attributable to the diminished prevalence of venereal disease. There was also a reduction in the ratio of invaliding from these diseases, but the death-rate was much higher.

There were six deaths from disease of these organs, almost all being various forms of chronic nephritis. A fatal case of degeneration and abscess of the kidney occurred in the person of a marine of the Indus. He was placed on the sick-list on the 4th of February for an attack of epistaxis, which was checked by appropriate treatment. Great debility, however, with loss of appetite, and general derangement of the system, supervened, and induced a careful examination of him, when he was found to be suffering from well-marked indications of tubercular deposit in the inferior and posterior part of both lungs. He complained of cough attended with some pain of a dragging character, referred to the sternal region, and accompanied by sputa of a colourless ropy mucus. His breathing was short and oppressed, especially on going up and down ship's ladders; his pulse was accelerated and weak; his countenance anæmic; and he complained of lassitude and debility. Percussion gave dulness in the regions of the inferior lobes of both lungs, especially perceptible in the right one and posteriorly, where also the respiratory murmur was obscured, and vocal resonance audible. Treatment by hæmatic tonics with cod liver oil; the most generous diet, and a liberal allowance of wine, with occasional palliative expectorants, and counter irritation to the chest by tincture of iodine, failed to produce any beneficial results. He became more and more emaciated and debilitated,

debilitated, and in this condition was discharged to Plymouth Hospital on the 22nd of February. There, on admission, he is said to have been labouring under great general debility, and he had a sallow, yellow, dingy countenance. There was tenderness over both kidneys, particularly the right one; the urine was ammoniacal and purulent; he had no appetite, lost flesh rapidly, and became hectic. Finally, the urine became scanty, and eventually almost suppressed, and he died on the 17th of March. On post-mortem examination of the body, gummatous masses were found in the lungs, liver, and spleen. The right kidney was disintegrated and filled with pus, converted, in fact, into a large abscess; its capsule was thickened. The left kidney was rather large, and the seat of granular degeneration.

A death from nephritis resulting in abscess also occurred in Haslar Hospital on the person of a seaman of the Victoria and Albert, who had been under treatment since August 1865, and died from exhaustion. On post-mortem examination the body is reported to have been extremely emaciated. A sinus extended along the tenth rib of the left side, and opened externally on the left hypochondriac region. Internally it penetrated the diaphragm and pleura, and opened into the lungs. The bone was quite denuded of periosteum. The intestines were matted together by old adhesions. The left kidney was removed with considerable difficulty, it was so firmly bound down. It was enormously enlarged, weighing two pounds. On cutting into it, it was found to be full of pus enclosed in cysts, the parenchyma of the organ being completely absorbed. Small calculi were found blocking up the pelvis, and preventing the passage of fluid into the ureter. The right kidney was double its natural size, but of healthy structure. The other organs were healthy.

Venereal Diseases.—Of primary syphilis, 1,134 cases were under treatment during the year; 327 of secondary syphilis, and 434 of gonorrhœa. The average duration of each case of primary syphilis on board ship and in hospital was about forty-five days; of each case of secondary syphilis about thirty-four days, and of each case of gonorrhœa about eighteen days. About 135 men were daily under treatment for primary syphilis, thirty for secondary syphilis, and twenty-one for gonorrhœa. In 1865, the number of men daily under

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treatment for primary and secondary syphilis was 226·6, and for gonorrhœa 29·7. The ships that suffered most from these diseases, were the Asia, Canopus, Cumberland, Duke of Wellington, and Excellent.

In the Asia there were sixty-six cases of primary syphilis, twenty-three of secondary syphilis, and twenty-nine of gonorrhœa. With reference to the primary form of disease, the surgeon says:—

"The disease was generally contracted in the neighbourhood, chiefly in St. Mary's-street, Portsmouth, a locality that has long been notorious as the resort of the lowest class of prostitutes. The character of the disease was nearly always the same, a superficial spreading chancre, generally infecting the contiguous parts, and frequently giving rise to buboes. As the sore gives no pain, the men seldom apply until the glands in the groin are inflamed. About half the cases were sent to hospital, and half treated on board. Secondary symptoms appeared in four cases, the form being generally a scattered eruption, which has been named syphilitic acne; rheumatic pains were also complained of. In several cases the disease was contracted in other towns, as London, Bristol, and Hull, by men on leave. An old pensioner, sixty-two years of age, contracted the disease in Portsmouth. When he applied on the 16th of January, he presented a chancre of large size, situated on the inner surface of the prepuce, and a large suppurating bubo in the right groin. He said he had been ashamed to apply before, and when he did come, he was in a very nervous tremulous state. He was sent to hospital, where he died on the 18th of March. In proportion to the number of the different classes borne on board, the Marines supplied by far the largest number of cases of syphilis.

"The cases of secondary syphilis occurred chiefly in men lately returned from foreign stations. Eruptions on the skin, as lepra, rupia, &c., were the most common. Ulceration of the tonsils, and rheumatic pains were common. Iritis occurred in one case; disease of the testicles in another. The worst case was that of a seaman, who had contracted the disease in Valparaiso, in December 1865. He was given mercury to salivation, and had been some time on salt provisions on the passage to England. When he applied he was in a miserable state of syphilitic cachexia, with rupial ulcers on the extremities.

"The cases of gonorrhœa were generally tedious. These occurred chiefly among the servants."

The case referred to above as having proved fatal, appears in Table IV. under the head of erysipelas. While in hospital the chancre healed rapidly; the bubo assumed a healthy appearance, and for a time progressed favourably, but short sinuses subsequently formed, requiring incisions, and retarding

ing the cure. His general health remained little impaired. On the 11th of March, however, he was seized with headache and other pyrexial symptoms. Erysipelas soon appeared in the groin, and rapidly extended on the thigh, hip, and genitals, which became largely œdematous. The pulse became full and rapid; for a few days he seemed to improve; all febrile disturbance abated, and he ate fairly; the erysipelas also ceased to extend. On the 18th of March he was attacked with diarrhæa, accompanied by distressing tympanitis and hiccup, but with little pain, and no tenderness of the abdomen; the pulse failed rapidly in strength; the features became shrunken; he refused all food and stimulants, and rapidly sunk.

There were seventy-three cases of primary syphilis in the Canopus, nine of secondary syphilis, and ten of gonorrhœa. Little or no information is, however, furnished respecting them.

In the Cumberland, and the Naval Barracks at Sheerness, there were seventy-three cases of primary syphilis; twenty-one of secondary syphilis, and fifty-nine of gonorrhœa. These diseases, however, for the most part, do not appear to have been contracted at Sheerness. The surgeon* of the Cumberland says:—

"The cases of syphilis are evidently of a much milder type than formerly, and in many instances, venereal cases which formerly required hospital treatment, can now be satisfactorily treated on board. The greatest number of cases occurred during the last quarter, evidently due to the great amount of leave granted to the men at that season of the year. The disease was not, as a rule, contracted at Sheerness, but in other places where the men were on long leave. Sheerness may be said, to an extent, to be free from the disease, but never can be entirely until the Contagious Diseases Act has a more general application and a wider scope, as it is very common for both men and women suffering from syphilis to come to Sheerness, and infect others with the same disease."

The surgeon† in charge of the Naval Barracks also says:—

"Seventy-four cases of venereal disease have come under my care; of these, thirty-one were cases of primary syphilis, eleven of secondary

* Surgeon L. J. Monteith. † Surgeon John Breakey, M.D.

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secondary syphilis, and thirty-two of gonorrhœa. I have ascertained by asking men, when they have presented themselves with syphilis or gonorrhœa, where they contracted the disease, that in two-thirds of the cases it was in London or Woolwich. I believe the working of the Contagious Diseases Act has had a beneficial effect in this town, very few cases occurring among the men having been contracted at this port."

The staff-surgeon* of the Formidable, the flag-ship at Sheerness, remarks on this subject:—

"There can be no doubt of the good effects which have followed the introduction even of the first prophylactic measure in connection with this class of diseases. Though it was often imperfectly carried out, owing to deficiency of accommodation at the civil hospital at Chatham, to which the women were sent, there has still been a marvellous diminution in the number of venereal cases at Sheerness. Thirteen cases of syphilis have been added to the sick-list during the period, but all the patients, with one exception, asserted, on the closest questioning, that the disease was contracted elsewhere, generally either in Chatham or London."

There were seventy-five cases of primary syphilis; twenty-seven of secondary syphilis, and nineteen of gonorrhœa in the Duke of Wellington, at Portsmouth. Probably on account of the proximity of Portsmouth to localities to which the Contagious Diseases Act does not extend, the beneficial influence of the Act does not appear to have been experienced so much there as in other places. Nevertheless some of the medical officers bear testimony to its value. The surgeon of the Duke of Wellington† speaking of the month of December, says:—

"Thanks to the authorities under the Contagious Diseases Act, the greatest number of cases of primary syphilis was four in one week, two and three ordinarily; but this is in excess of October and November. The men evidently appreciate what is done for their benefit. There were no cases of concealing the disease, and not much reluctance in giving up the names of the women from whom they had contracted it."

In the Excellent, at Portsmouth, there were seventy cases of primary syphilis, forty of secondary syphilis, and twenty-

* Staff Surgeon Robert Pottinger.
† Surgeon W. T. Wilson.

twenty-one of gonorrhœa; concerning which the surgeon says:— Home Station.

"The following analysis will show the relative proportion of the disease, as distributed over the various quarters:—

			Cases.		Cases.		Cases.
Lady	Quarter	Primary Syphilis	23	Secondary	9	Gonorrhœa	8=40
Midsummer	„	„ „	17	„	13	„	4=34
Michaelmas	„	„ „	19	„	11	„	5=35
Christmas	„	„ „	11	„	7	„	4=22

"The number victualled during these periods respectively were, 1st quarter, 1,186; 2nd quarter, 1,177; 3rd quarter, 1,500; 4th quarter, 1,425. By this it will be perceived that a decline is apparent, graduated from the first to the last quarter, for though the Midsummer and Michaelmas quarters are nearly equal, yet the large increase in the crew during the latter displays a balance in favour of it to a considerable extent. But the most striking and satisfactory result is obtained by a comparison between the commencement and termination of the year, a diminution of nearly 100 per cent. having taken place at the latter period; the Christmas quarter showing twenty-two cases against forty in the one ending on the 31st of March, and this not taking into calculation that the number victualled in those quarters shows such a disparity. To neutralise, however, the hopeful character of this examination it must be borne in mind that the ship's company were granted leave on the Excellent being paid off on the 1st of January, and no doubt indulged in the excesses common to such an occasion, rendering them more obnoxious to contracting the disease in its primary form, a supposition corroborated in a measure by the fact that the greater number of the patients admitted to the sick-list labouring under these affections, applied for relief during the first portion of the quarter. It is very difficult, and indeed from my observation it would be premature, to attempt to draw any reliable conclusion as to the beneficial working of the 'Contagious Diseases Prevention Act' in this port, for, as well as I can discover, it has not as yet had a sufficiently fair trial, owing to the limited number of applicants who can be received in the civil establishment here; and it is stated on shore that the Act in question has had the effect of augmenting the amount of immorality existing before its introduction, by attracting women of bad character by the prospect of the asylum offered them, and it is also stated that the union workhouses here have received a large accession of patients of this class since the Act has come into operation. I give these statements without feeling competent to endorse them, or to dispute their validity. I may add, that as far as my personal experience is concerned, and looking to this year's results, I conceive there are good grounds for expressing a sanguine hope that a mode has at length been successfully initiated of checking the ravages of enthetic diseases, which have so long and lamentably impaired the efficiency and destroyed

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the health of so large a proportion of the best seamen of our navy."

Wounds and Injuries.—Three men sustained fatal fracture of the skull by falling from aloft; one, by falling from the upper deck to the engine-room; one, by a fall while on shore; one, by a fall from a building; and one, by a blow from a revolving pump-handle. Three men sustained fatal fracture of the cervical vertebræ; one, by being thrown violently against the thwarts of a boat, his head being doubled down on his chest; one, by a fall from the lower deck into the store-room; and one by falling from aloft. One man died from erysipelas following a severe contusion of the leg by the chain cable; and a man was killed by being accidentally blown from a gun.

Eighteen persons were drowned. Of these, five fell overboard; one was drowned in attempting to swim ashore; two were supposed to have fallen over a pier in the dark; one was capsized in a boat; the body of one man was found in a camber, but how it came there is not known; one man was drowned while bathing; and in seven cases in which men were drowned it is not known how the accident occurred. Three men committed suicide; one, by hanging himself; one, by shooting himself through the head; and one, by throwing himself from the parapet of the dockyard stores at Portsmouth.

The cause of death in one instance is not given.

The total number of deaths was 172; of which 138 were from various forms of disease, and thirty-four from the effects of wounds and injuries and drowning. The total ratio of mortality was 8·1 per 1,000 of mean force, which is an increase to the extent of 1· per 1,000 compared with the preceding year. The death-rate from disease alone was 6·5 per 1,000. In 1865 it was 5·8.

Invalided.—Four persons were invalided for the sequelæ of fever; sixty-one for diseases of the brain and nervous system, one-half of whom were epileptic; 122 for diseases of the organs of respiration, ninety-two of whom were phthisical; seventy-two for diseases of the heart and bloodvessels; five for diseases of the alimentary canal; four for disease of the liver; thirty-two for diseases of the genito-urinary organs,

gans, twenty-two of whom laboured under secondary syphilis; fifty-five for rheumatism; three for gout; ten for diseases of the bones and joints; twenty-two for diseases of the special senses; fifty-seven for diseases of the skin and cellular tissue; twenty-four for dyspepsia and debility; one for dropsy; one for headache; one for purpura; forty-four for the effects of wounds and injuries; and thirty-six for hernia; making the total number invalided 554, which is in the ratio of 26·1 per 1,000 of mean force, being a fractional increase only, compared with the preceding year. Home Station.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	247	11·6	1	- -	11	·5
Intermittent Fever	130	6·1	3	·1	—	—
Small Pox	29	1·3	—	—	—	—
Measles	42	1·9	—	—	—	—
Scarlatina	90	4·2	- -	- -	2	—
Varicella	3	·1	—	—	—	—
Vaccinia	16	·7	—	—	—	—
Disease of the Brain	4	·1	2	- -	2	—
Apoplexy	9	·4	- -	- -	5	·2
Epilepsy	66	3·1	30	1·4	2	—
Paralysis	19	·8	16	·7	4	·1
Insanity	17	·8	4	·1	—	—
Delirium Tremens	37	1·7	- -	- -	1	—
Neuralgia	45	2·1	1	—	—	—
Vertigo	47	2·2	8	·3	—	—
Inflammation of the Lungs and Pleura	414	19·5	20	·9	11	·5
Phthisis and Hæmoptysis	178	8·3	92	4·3	39	1·8
Influenza and Catarrh	2,957	139·4	4	·1	—	—
Cynanche	783	36·9	3	·1	2	—
Asthma	7	·3	2	- -	1	—
Bronchocele	1	- -	1	—	—	—
Disease of the Heart, Functional and Organic	134	6·3	55	2·5	18	·8
Hæmorrhoids	50	2·3	—	—	—	—
Varix	34	1·6	17	·8	—	—
Aneurism	1	- -	- -	- -	2	—
Disease of the Stomach and Bowels	28	1·3	2	- -	5	·2
Dysentery	20	·9	1	- -	1	—
Diarrhœa	1,227	57·8	1	- -	1	—
Cholera	15	·7	- -	- -	8	·3
Constipation and Colic	263	12·4	1	—	—	—
Disease of the Liver	34	1·6	4	·1	6	·2
Jaundice	56	2·6	—	—	—	—
Splenitis	1	—	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	21	·9	1	-	6	·2
Syphilis, Primary	1,134	53·4	—	—	—	—
Syphilis, Secondary	327	15·7	22	1·	—	—
Gonorrhœa	434	20·4	—	—	—	—
Orchitis	333	15·7	3	·1	—	—
Stricture	64	3·	—	—	—	—
Incontinence of Urine, &c.	12	·5	6	·2	—	—
Rheumatism	1,256	59·2	55	2·5	—	—
Gout	47	2·2	3	·1	—	—
Disease of the Bones and Joints	63	2·9	10	·4	—	—
Inflammation of the Eyes	239	11·2	6	·2	—	—
Amaurosis and Cataract	17	·8	6	·2	—	—
Otitis and Deafness	44	2·	10	·4	—	—
Erysipelas	45	2·1	2	-	2	—
Scrofula	24	1·1	15	·7	—	—
Bubo (*Symp.*)	255	12·	3	·1	—	—
Phlegmon and Abscess	2,923	137·8	9	·4	1	—
Ulcer	1,341	63·2	25	1·1	—	—
Psora	400	18·8	—	—	—	—
Eruptions, &c.	319	15·	3	·1	—	—
Dyspepsia and Debility	793	37·4	24	1·1	—	—
Dropsy	20	·9	1	-	1	—
Worms	12	·5	—	—	—	—
Headache	85	4·	1	—	—	—
Purpura	11	·5	1	—	—	—
Cancer	1	-	-	-	5	·2
Pycemia	1	-	-	-	1	—
Wounds and Injuries	3,545	167·2	44	2·	12	·5
Burns and Scalds	131	6·1	—	—	—	—
Hernia	53	2·5	36	1·6	—	—
Drowned	-	-	-	-	18	·8
Poisoning	3	·1	—	—	—	—
Suicide	3	·1	-	-	3	·1
Not stated	-	-	-	-	1	—
Submersion	1	—	—	—	—	—
TOTAL	20,961	988·7	554	26·1	171	8·

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	1,736	3,951	5,687	15·5	·7
Intermittent Fever	836	452	1,288	3·5	·1
Small-pox	164	791	955	2·6	·1
Measles	64	556	620	1·6	—
Scarlatina	49	2,625	2,674	7·3	·3
Varicella	1	50	51	·1	—
Vaccinia	98	—	98	·2	—
Disease of the Brain	50	257	307	·8	—
Apoplexy	31	106	137	·3	—
Epilepsy	495	546	1,041	2·8	·1
Paralysis	130	1,246	1,376	3·7	·1
Insanity	63	782	845	2·3	·1
Delirium Tremens	146	325	471	1·2	—
Neuralgia	325	306	631	1·7	—
Vertigo	250	495	745	2·	—
Insolation	—	70	70	·1	—
Inflammation of the Lungs and Pleura	4,483	9,092	13,574	37·1	1·7
Phthisis and Hæmoptysis	1,982	8,544	10,526	28·8	1·3
Influenza and Catarrh	16,059	3,181	19,240	52·7	2·4
Cynanche	5,014	1,135	6,149	16·8	·7
Asthma	41	35	76	·2	—
Bronchocele	—	23	23	—	—
Disease of the Heart, Functional and Organic	1,341	3,422	4,763	13·	·6
Hæmorrhoids	449	161	610	1·6	—
Varix	167	295	462	1·2	—
Aneurism	4	99	103	·2	—
Disease of the Stomach and Bowels	206	522	728	1·9	—
Dysentery	55	489	544	1·4	—
Diarrhœa	5,068	1,376	6,444	17·6	·8
Cholera	19	59	78	·2	—
Constipation and Colic	1,058	141	1,199	3·2	·1
Disease of the Liver	419	990	1,409	3·8	·1
Jaundice	569	293	862	2·3	·1
Splenitis	4	25	29	—	—

TABLE, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	261	537	798	2·1	—
Syphilis, Primary	15,253	33,979	49,232	134·8	6·3
Syphilis, Secondary	3,900	7,116	11,016	30·1	1·4
Gonorrhœa	4,886	2,780	7,666	21·	·9
Orchitis	3,908	2,348	6,256	17·1	·8
Stricture	486	1,783	2,269	6·2	·2
Incontinence of Urine, &c.	119	200	319	·8	—
Rheumatism	11,016	13,806	24,822	68·	3·2
Gout	510	144	654	1·7	—
Disease of the Bones and Joints	774	1,750	2,524	6·9	·3
Inflammation of the Eyes	2,123	2,007	4,130	11·3	·5
Amaurosis and Cataract	112	222	334	·9	—
Otitis and Deafness	429	523	952	2·6	·1
Erysipelas	277	1,139	1,416	3·8	·1
Scrofula	385	989	1,374	3·7	·1
Bubo (*Symp.*)	3,165	2,792	5,957	16·3	·7
Phlegmon and Abscess	22,054	6,644	28,698	78·6	3·7
Ulcer	18,688	12,114	30,802	84·3	3·9
Psora	3,044	18	3,062	8·3	·3
Eruptions, &c.	3,535	2,700	6,235	17·	·8
Purpura	84	120	204	·5	—
Cancer	44	19	63	·1	—
Dyspepsia and Debility	4,288	3,376	7,664	20·9	·9
Dropsy	186	455	641	1·7	—
Worms	48	-	48	·1	—
Headache	449	165	614	1·6	—
Pyœmia	24	-	24	—	—
Wounds and Injuries	33,432	9,829	43,261	118·5	5·5
Burns and Scalds	1,454	211	1,665	4·5	·2
Hernia	343	38	381	1·	—
Poisoning	7	-	7	—	—
Submersion	6	-	6	—	—
TOTAL	176,666	150,244	326,910	895·7	42·2

TABLE, No. 3.

SHOWING the Number INVALIDED

CAUSE OF INVALIDING.	Achilles.	Active.	Asia.	Bellerophon.	Black Prince.	Boscawen.	Britannia.	Caledonia.	Cambridge.	Canopus.	Cumberland and Naval Barracks.	Dædalus.	Dasher.	Dauntless.	Dee.	Defence.	Donegal.	Duke of Wellington.	Excellent.	Ferret.	Fisgard.	Formidable.	Fox.
Continued and Remittent Fever	–	–	–	–	–																		
Intermittent Fever	–	–	–	1	–													1					
Inflammation of the Brain	–	–	–	–	–									1									
Insanity	–	–	–	1	–													3					
Epilepsy	–	–	2	1	1					3	2			1		1	1	2			1		
Paralysis	–	–	1	1	–				1		2							2					
Neuralgia	–	–	–	–	–																		
Vertigo	–	–	–	–	–					1	1	–	1	–	–	–	–	1	1				
Inflammation of the Lungs and Pleura	2	–	2	–	–			1	–	–	–			1	–	–	1	2	–		2	–	
Phthisis and Hæmoptysis	4	–	7	–	–	2	2	2	1	3	4	–	–	1	–	–	1	9	14	–	1	2	1
Catarrh	–	–	–	–	–																		
Cynanche	–	–	–	–	1										1								
Asthma	–	–	–	–	–				1														
Bronchocele	–	–	–	–	–													1	–				
Disease of the Heart, Functional and Organic	2	–	1	4	3	2	–	–	1	10	–	1	–	–	–	2	–	6	2	–	–	1	–
Varix	–	–	–	–	–	3	–	–	–	3	1	–	–	–	–	–	–	–	–	–	1	1	–
Inflammation of the Stomach and Bowels	–	–	a 1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dysentery	–	–	–	–	–																		
Diarrhœa	–	–	–	–	–																		
Colica Pictonum	–	–	–	–	–																		
Disease of the Liver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Kidneys and Bladder	–	–	–	–	–																		
Syphilis, Secondary	–	–	–	2	1					1						1	–	3	4				
Orchitis	–	–	–	–	–																	1	
Incontinence of Urine, &c.	–	–	–	–	–	–	–	1	–	1	–	–	1	–	–	–	–	–	–	–	–	–	–
Rheumatism	–	–	6	2	2	1	–	1	–	1	2	–	1	1	–	–	–	6	4	1	–	–	1
Gout	–	–	–	–	–																	1	
Diseases of the Bones and Joints	1	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	3	–	–	–	–	–
Inflammation of the Eyes	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–
Amaurosis and Cataract	–	–	–	–	–					2													
Otitis and Deafness	3	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Erysipelas	–	–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Scrofula	–	–	1	1	–	–	–	–	1	–	1	–	–	–	–	–	–	2	–	–	–	–	–
Abscess	1	–	–	–	1	1	–	–	–														
Ulcer	1	–	–	–	1	–	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	–
Eruptions, &c.	–	–	–	–	–													1	1				
Bubo (*Symp.*)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	1	–	–
Dyspepsia and Debility	–	–	–	1	b 2	–	–	1	–	b 2	–	–	1	–	–	–	1	c 3	–	–	–	–	–
Headache, &c.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dropsy	–	–	–	–	–																		
Purpura	–	–	–	–	–													1	–	–	–	–	–
Wounds	3	–	–	–	–	–	–	1	–	6	–	–	–	–	–	–	–	3	1	–	2	–	–
Hernia	–	1	1	1	–	–	–	–	2	2	–	–	–	–	–	1	–	2	3	–	–	2	–
TOTAL	17	1	23	15	12	9	2	7	10	38	13	1	4	5	1	5	4	49	35	1	8	8	2

a Hæmatemesis.

b 1 from loss of teeth.

TABLE, No. 3.

from each SHIP on the HOME STATION.

Frederick William.	Ganges.	Gladiator.	Hastings.	Hector.	Helicon.	Implacable.	Impregnable.	Influs.	Irresistible.	Lion.	Liverpool.	Lord Clyde.	Medusa.	Osborne.	Pallas.	Pembroke.	President.	Prince Albert.	Prince Consort.	Research.	Revenge.	Royal Adelaide.	Royal George.	Royal Sovereign.	St. George.	St. Vincent.	Trafalgar.	Victoria and Albert.	Victory.	Wellesley.	Wivern.	TOTAL.
–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	3
–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4
1	1	–	1	1	–	2	2	–	–	1	–	–	–	–	–	–	–	–	–	1	1	1	–	–	3	1	–	–	–	–	–	30
–	–	1	–	–	–	–	–	2	2	–	–	–	–	1	–	–	–	–	–	–	–	1	1	1	–	–	–	–	–	–	–	16
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	–	–	–	1	–	–	8
–	1	1	–	–	–	–	1	1	–	–	2	–	–	–	2	1	1	1	1	1	–	1	2	1	1	1	–	–	3	1	1	20
–	–	–	–	1	–	–	1	3	5	1	4	1	–	–	2	1	1	1	1	1	–	1	2	2	2	3	–	–	3	1	1	92
–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	4
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	2	2	1	–	–	2	1	4	1	1	–	–	–	–	–	–	–	–	–	2	–	–	–	–	1	2	–	–	2	–	–	55
–	1	–	–	–	–	–	4	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	17
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	1	–	–	–	–	4
1	–	–	–	–	–	–	–	2	–	–	1	1	–	–	1	–	–	–	–	1	–	–	–	–	1	1	–	–	1	1	–	22
1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	–	–	–	–	–	3
–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6
2	1	2	–	–	1	–	4	1	1	–	–	–	–	–	–	1	–	–	–	–	–	1	1	1	1	1	–	2	7	1	–	55
–	3	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	10
–	–	–	–	–	–	–	–	2	–	–	1	1	–	–	–	1	–	–	–	1	–	1	–	1	–	–	–	–	–	–	–	6
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	6
–	2	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	10
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	1	1	–	1	–	–	1	–	1	–	–	1	–	–	–	1	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	15
1	1	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	2	–	–	–	–	–	–	1	–	–	–	–	–	9
–	1	–	–	–	–	–	16	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	25
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	2	–	–	1	2	–	51	54	–	–	–	–	–	–	51	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	24
–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	–	–	–	1	1	2	2	5	–	–	3	1	–	1	–	3	–	–	–	–	1	–	–	–	1	2	–	1	–	1	1	44
–	–	–	–	–	–	3	2	10	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	3	–	–	–	–	–	36
8	17	8	3	7	4	9	38	41	13	3	14	6	1	2	5	7	1	1	8	4	3	6	4	7	13	22	2	3	17	5	2	554

* 1 Sea sickness.

TABLE, No. 4. - - - - - - - -

SHOWING the Number of DEATHS in each - - - - -

CAUSE OF DEATH.	Achilles.	Asia.	Bellerophon.	Black Prince.	Boscawen.	Britannia.	Caledonia.	Cambridge.	Canopus.	Castor.	Cumberland.	Dædalus.	Dasher.	Dauntless.	Dee.	Defence.	Donegal.	Duke of Wellington.	Eagle.	Excellent.	Fisgard.
Continued and Remittent Fever	1	–	–	1	–	–	–	1	1	–	–	–	1	–	–	–	–	–	–	–	–
Scarlatina	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Brain	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Apoplexy	–	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Epilepsy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Delirium Tremens	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Paralysis	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–
Diphtheria	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura	–	2	–	–	–	–	–	1	1	1	–	–	–	–	–	–	–	–	–	–	2
Phthisis	1	7	1	1	–	–	–	3	–	–	–	–	–	–	1	1	1	–	1	1	–
Asthma	–	1	–	–	–	–	c	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Heart	–	1	–	–	–	1	–	2	–	–	1	–	–	1	–	–	–	–	–	4	–
Aneurism	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Angina Pectoris	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Hæmatemesis	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Diseases of Stomach and Bowels	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	–	–	–
Diarrhœa	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dysentery	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Cholera	–	2	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Liver	1	1	–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	–	–	–
Nephritis	–	–	–	–	–	1	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–
Erysipelas	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–
Phlegmon and Abscess	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dropsy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cancer	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–
Pyœmia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Wounds and Injuries	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Drowned	–	1	–	–	–	1	–	–	–	–	1	1	2	1	–	–	–	–	–	–	–
Suicide	–	a1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Not stated	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TOTAL	3	22	1	3	3	3	2	9	2	1	7	2	5	3	1	1	1	1	1	7	4

a Hanging. *b* Stomach. *c* Pistol shot.

TABLE, No. 4.

Ship employed on the HOME STATION.

Formidable.	Fox.	Frederick William.	Ganges.	Gladiator.	Hastings.	Hector.	Implacable.	Impregnable.	Indus.	Irresistible.	Jackal.	Lion.	Liverpool.	Lord Clyde.	Martin.	Pallas.	Pembroke.	President.	Prince Consort.	Revenge.	Royal Adelaide.	Royal George.	Royal Sovereign.	St. George.	St. Vincent.	Sealark.	Trafalgar.	Victoria and Albert.	Victory.	Wellesley.	TOTAL.
–	–	1	–	–	1	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	–	–	–	1	–	11
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	–	5
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	4
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	1	–	1	1	1	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	11
1	–	–	–	–	1	1	–	3	1	–	–	–	2	–	–	1	–	–	1	1	1	1	1	–	1	–	–	1	2	–	39
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	1	1	–	1	–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	1	1	17
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–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
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–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	6
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–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	2
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–	–	–	–	–	–	–	–	–	*d*1	1	–	–	–	–	–	–	–	–	–	–	*e*1	–	–	–	–	–	–	–	–	–	5
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
1	–	–	–	1	–	1	–	–	–	–	–	2	–	1	–	–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	12
–	–	–	–	–	–	–	–	–	2	–	–	1	–	–	–	4	–	1	–	–	–	–	–	1	–	–	1	–	1	–	18
–	–	–	*c*1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	*f*1	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
2	2	1	4	2	4	2	1	6	9	1	1	2	4	1	1	1	8	2	5	3	2	5	1	4	4	1	1	3	5	1	171

d Liver. *e* Brain. *f* Leap from the parapet of a building.

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Cases; the Total Number of Days' Sickness on Board; the Average Number of Men Sick Daily, in ach SHIP, and the Number Discharged to Hospital.

C. Commissioned. D. Returns defective. P. O. Paid off. C. S. Station changed.

RATE, &c.	NAMES OF SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.	Period.	Average Complements.	Average Complements Corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
Ironclad	Achilles	Chatham	15 Sept. 1864	26	6,121	S.1,250	year	715	715	715	7,901	21·6	30·2	60
	Bellerophon C.	Portsmouth	26 Mar. 1866	14	4,270	S.1,000	1 April to 31 Dec.	520	390	502	3,773	10·3	26·4	145
	Black Prince P. O. & C.	Queenstown	19 May 1866	41	6,109	S.1,250	year	560	560	384	3,127	8·5	15·1	62
	Caledonia C. S.	Devonport	27 April 1865	30	4,125	S.1,000	1 April to 31 Dec.	550	415	478	6,016	16·4	39·5	46
	Defence P. O.	Chatham	4 Dec. 1861	16	3,720	S. 600	1 Jan. to 9 June	470	200	250	2,767	7·5	37·5	23
	Hector	Portsmouth	13 Jan. 1864	20	4,089	S. 800	year	535	535	456	4,659	12·7	23·7	48
	Lord Clyde C.	Devonport	1 June 1866	24	4,067	S.1,000	1 June to 31 Dec.	590	340	393	4,291	11·7	34·4	29
	Pallas C.	Sheerness	6 Mar. 1866	6	2,372	S. 600	5 Mar. to 31 Dec.	290	240	458	4,352	11·9	49·5	33
(Turret)	Prince Albert C. & P. O.	Woolwich	30 Jan. 1866	4	2,537	S. 500	14 Feb. to 10 Oct.	185	125	202	1,006	2·7	21·6	57
	Prince Consort C. S.	Devonport	14 Jan. 1864	31	4,045	S.1,000	1 Jan. to 30 June	610	305	379	5,075	13·9	45·5	46
	Research	Devonport	11 Mar. 1864	4	1,253	S. 200	year	115	115	262	2,576	7·	60·8	17
(Cupola)	Royal Sovereign P. O.	Portsmouth	- - -	5	3,765	S. 800	1 Jan. to 10 Oct.	175	130	114	954	2·6	20·	41
	Wivern	Portsmouth	28 Sept. 1865	4	1,899	S. 350	year	150	150	203	1,815	4·9	32·6	20
Fourth Rate	Liverpool	Devonport	30 April 1863	39	2,656	S. 600	year	550	550	776	5,594	15·3	27·8	48
Sixth Rate	Gladiator	Devonport	16 Mar. 1864	6	1,210	P. 430	year	205	205	279	2,547	6·9	33·6	23
Stationary Ship	Asia	Portsmouth	1 April 1862	-	2,289	-	year	1,655	1,655	662	5,608	15·3	9·2	152
	Cambridge	Devonport	1 Mar, 1862	78	2,139	-	year	770	770	744	4,856	13·3	17·2	113
	Canopus	Devonport	1 April 1863	8	2,257	-	year	465	465	581	3,001	8·2	17·6	176
	Cumberland	Sheerness	1 Jan. 1864	24	2,214	-	year	1,090	1,090	847	8,947	24·5	22·4	68
	Duke of Wellington	Portsmouth	1 May 1863	49	3,771	S. 700	year	485	485	742	4,358	11·9	24·5	164
	Excellent	Portsmouth	1 Jan. 1866	-	2,311	-	year	1,320	1,320	1,420	6,436	17·6	13·3	362
	Fisgard	Woolwich	1 Jan. 1863	42	1,069	-	year	280	280	266	1,795	4·9	17·5	72
	Formidable	Sheerness	1 Jan. 1865	26	2,289	-	year	270	270	248	1,625	4·4	16·2	18
	Hastings P. O.	Liverpool	1 July 1862	50	1,760	S. 200	1 Jan. to 18 May	255	120	63	628	1·7	14·1	17
	Indus	Devonport	1 Jan. 1864	-	2,098	-	year	1,065	1,065	693	5,796	15·8	14·8	137
	Royal Adelaide	Devonport	1 Jan. 1862	26	2,446	-	year	320	320	147	1,768	4·8	15·	16
	Saturn	Pembroke	1 Jan. 1863	-	1,616	-	year	70	70	41	456	1·2	17·1	-
	Victory	Portsmouth	1 Jan. 1862	12	2,164	-	year	390	390	252	1,278	3·5	8·9	82

Drill Ship for Naval Reserve.	Active	Chatham	8 May 1863	20	1,027	–	year	35	35	37	488	1·3	37·1	2
	Brilliant	Woolwich	1 April 1862	16	954	–	year	30	30	28	246	·6	20·	4
	Castor	Chatham	1 April 1862	22	1,293	–	year	50	50	65	478	1·3	26·	1
	Dædalus	Devonport	1 April 1862	16	1,082	–	year	45	45	39	354	·9	20·	2
	Eagle	Liverpool	1 July 1862	16	1,723	–	year	35	35	26	177	·4	11·4	1
	President	Woolwich	1 April 1862	16	1,537	–	year	40	40	35	136	·3	75·	–
	Trincomalee	Chatham	1 April 1862	16	1,066	–	year	30	30	32	301	·8	26·6	1
	Winchester	Liverpool	1 July 1862	12	652	–	year	35	35	36	252	·6	17·1	–
Coast Guard Ship	Dauntless	Sheerness	1 April 1864	31	1,575	S. 580	year	210	210	167	1,623	4·4	20·9	17
	Donegal	Devonport	1 Sept. 1861	81	3,245	S. 800	year	300	300	469	4,433	12·1	40·3	10
	Frederick William	Portsmouth	1 July 1864	74	3,241	S. 500	year	350	350	273	2,084	5·7	16·2	22
	Irresistible	Sheerness	1 April 1864	60	2,642	S. 400	year	330	330	179	2,473	6·7	20·3	27
	Lion	Devonport	1 July 1864	60	2,611	S. 400	year	290	290	314	2,721	7·4	25·5	21
	Pembroke	Sheerness	1 Mar. 1858	25	1,758	S. 200	year	165	165	266	3,726	10·2	61·8	4
	Revenge	Devonport	1 Sept. 1865	73	3,322	S. 800	year	390	390	341	4,000	10·9	27·9	9
	Royal George	Devonport	1 April 1864	72	2,616	S. 400	year	280	280	516	4,239	11·6	41·4	25
	St. George	Devonport	10 Feb. 1864	72	2,864	S. 500	year	310	310	273	3,720	10·1	32·5	27
	Trafalgar	Sheerness	1 Mar. 1864	72	2,900	S. 500	year	320	320	276	3,811	10·4	32·5	–
Training Ship	Boscawen	Southampton	5 Mar. 1862	20	2,213	–	year	400	400	364	3,338	9·2	23·	108
	Britannia	Portsmouth	1 Jan. 1864	8	2,616	–	year	420	420	383	2,647	7·2	17·1	98
	Ganges	Devonport	1 Jan. 1866	20	2,285	–	year	480	480	903	7,182	19·6	40·8	110
	Implacable	Devonport	1 Jan. 1865	18	1,882	–	year	450	450	502	3,699	10·1	22·4	103
	Impregnable	Devonport	1 Jan. 1862	78	2,406	–	year	830	830	752	4,932	13·5	16·2	158
	St. Vincent	Portsmouth	1 Jan. 1862	26	2,612	–	year	700	700	429	3,966	10·8	15·4	70
	Wellesley	Chatham	1 Jan. 1866	72	1,746	–	year	165	165	74	761	2·	12·1	11
Steam Vessel	Dasher	Portsmouth	1 Jan. 1863	2	260	P. 100	year	225	225	242	2,013	5·5	24·4	20
	Helicon	Portsmouth	16 Sept. 1865	2	837	P. 250	year	65	65	104	771	2·1	32·3	28
	Jackal	Devonport	9 Feb. 1864	4	340	P. 150	year	60	60	33	365	1·	10·6	3
	Lizard	– – –	– – –	3	340	P. 150	year	45	45	67	420	1·1	24·4	3
	Medusa	Sheerness	1 Sept. 1863	–	889	P. 312	year	65	65	145	823	2·2	33·8	13
Yacht	Osborne	Portsmouth	21 Jan. 1865	2	1,034	P. 480	year	80	80	61	557	1·5	18·7	5
	Victoria and Albert	Portsmouth	1 Jan. 1865	2	2,345	P. 600	year	185	185	94	761	2·	10·8	7
Store Ship	Dee	Woolwich	12 June 1863	1	704	P. 220	year	75	75	89	620	1·6	21·3	4
	Fox	Woolwich	1 Jan. 1866	2	1,131	S. 200	year	105	105	113	1,126	3·	28·5	13
Training Brig	Ferret D.	– – –	– – –	8	358	–	year	70	70	97	767	2·1	30·	4
	Liberty D.	– – –	– – –	12	428	–	12 July to 31 Dec.	120	60	124	914	2·5	41·6	2
	Martin D.	– – –	– – –	10	481	–	year	100	75	140	968	2·6	34·6	16
	Sealark D.	– – –	– – –	8	319	–	1 June to 31 Dec.	95	55	56	308	·8	14·5	8
	Squirrel D.	– – –	– – –	10	428	–	year	75	70	175	1,701	4·6	65·7	8

TABLE, No. 6. - - - - - - - -

SHOWING the Number of CASES of all DISEASES and - - - -

DISEASE OR INJURY.	Achilles.	Active.	Asia.	Bellerophon.	Black Prince.	Boscawen.	Brilliant.	Britannia.	Caledonia.	Cambridge.	Canopus.	Castor.	Cumberland and Sheerness Barracks.	Dædalus.	Dasher.
Continued and Remittent Fever	5	-	1	2	2	5	3	5	5	31	5	2	6	-	5
Intermittent Fever	-	-	3	4	-	-	-	-	-	1	2	3	38	-	-
Vaccinia	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Small-pox	-	-	-	-	-	-	-	-	4	1	1	-	2	-	-
Scarlatina	-	-	-	-	-	77	-	-	-	-	-	-	-	-	1
Measles	-	-	-	-	-	-	-	32	2	-	1	-	-	-	-
Varicella	-	-	-	-	-	-	-	2	-	1	-	-	-	-	-
Disease of the Brain	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Apoplexy	-	-	1	-	-	-	-	-	-	1	-	-	2	-	-
Epilepsy	1	-	4	1	3	1	-	2	1	-	3	-	6	-	1
Paralysis	-	-	3	1	-	-	-	-	-	1	-	-	-	-	-
Insanity	-	-	1	1	-	-	-	-	-	-	-	1	-	-	-
Delirium Tremens	1	-	10	-	-	1	1	-	1	-	2	-	3	-	-
Neuralgia	-	-	1	1	3	-	-	-	1	2	-	-	6	1	-
Vertigo	-	-	-	2	-	-	-	-	-	1	4	1	3	-	5
Inflammation of the Lungs and Pleura	20	1	19	10	8	12	-	11	4	8	33	1	12	-	3
Phthisis and Hæmoptysis	6	1	18	-	3	-	-	4	6	3	4	-	1	3	-
Influenza and Catarrh	107	3	66	40	62	29	2	47	88	127	78	12	117	10	42
Cynanche	27	-	15	16	24	7	3	36	10	26	27	4	13	-	1
Asthma	-	-	1	-	-	-	-	-	-	-	-	-	-	2	-
Bronchocele	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disease of the Heart, Functional and Organic	3	-	10	4	3	-	1	1	-	8	7	1	*b* 7	-	1
Aneurism	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Hæmorrhoids	6	-	2	-	2	-	-	-	2	-	1	2	1	-	-
Cancer	-	-	-	-	-	-	-	-	-	*c* 1	-	-	-	-	-
Varix	-	-	1	-	-	3	-	-	-	-	7	-	2	-	-
Inflammation of the Stomach and Bowels	-	-	4	-	-	-	-	1	1	-	3	-	*d* 2	-	-
Cholera	-	-	4	-	-	3	-	-	-	-	-	-	-	-	-
Dysentery	-	-	-	2	-	-	-	-	-	-	1	-	-	-	-
Diarrhœa	24	10	50	77	11	40	3	7	5	48	12	7	54	6	5
Constipation and Colic	6	-	5	4	7	-	1	29	2	8	1	2	9	2	3
Inflammation of the Liver	-	-	5	-	-	-	-	4	-	3	1	-	1	-	-
Jaundice	1	-	4	-	2	4	-	2	-	-	1	-	3	-	-
Splenitis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inflammation of the Bladder and Kidneys	-	-	1	-	-	-	-	1	1	-	-	-	-	1	1
Syphilis, Primary	18	-	66	51	19	2	1	12	41	42	73	1	73	-	7
Ditto - Secondary	6	-	23	14	1	-	-	-	6	13	9	-	21	-	2
Gonorrhœa	15	-	29	12	5	1	-	3	2	21	10	-	59	-	1
Orchitis	10	-	14	14	9	2	-	4	7	13	14	1	18	-	-
Stricture of the Urethra	5	3	5	1	1	-	-	1	1	1	-	-	3	-	-
Incontinence of Urine, &c.	-	-	-	-	-	-	-	-	1	-	2	-	-	-	-
Rheumatism	41	3	57	21	27	8	-	8	26	56	22	11	50	8	15
Gout	-	-	11	-	-	-	-	-	-	2	-	5	-	1	-
Disease of the Bones and Joints	3	1	2	-	4	-	-	-	1	-	1	-	-	-	-
Inflammation of the Eyes	13	-	4	7	5	3	-	1	4	7	7	-	8	1	-
Amaurosis and Cataract	-	-	1	-	-	-	-	-	-	-	3	-	-	-	1
Otitis and Deafness	3	1	-	-	1	-	-	-	-	-	-	-	1	-	1
Erysipelas	-	-	4	1	-	1	-	-	5	-	-	-	3	-	1
Scrofula	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Bubo (*Symp.*)	13	-	15	1	6	-	-	-	1	4	-	-	12	-	5
Phlegmon and Abscess	98	3	52	111	51	40	4	56	92	83	65	3	76	1	35
Ulcer	65	1	31	30	24	14	-	25	58	16	25	-	18	-	24
Psora	4	-	5	8	2	23	-	1	4	29	48	-	13	-	4
Eruptions, &c.	2	-	8	1	1	12	-	14	3	18	2	-	9	-	4
Dyspepsia and Debility	52	2	19	22	21	5	2	7	18	28	9	-	26	2	26
Headache, &c.	-	-	3	-	-	-	-	9	-	10	1	2	1	-	11
Dropsy	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
Worms	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Wounds and Injuries	153	8	77	128	77	68	6	54	72	125	89	6	164	1	37
Burns and Scalds	7	-	1	3	-	3	1	2	3	1	2	-	5	-	-
Hernia	-	-	2	1	-	-	-	-	-	2	2	-	-	-	-
Pyæmia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Suicide	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Submersion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poisoning	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Purpura	-	-	1	-	-	-	-	-	-	-	3	-	-	-	-
TOTAL	715	37	662	592	384	364	28	383	478	744	581	65	847	39	242

a 2 Diphtheria. *b* 1 Angina. *c* Of Stomach.

TABLE, No. 6.

INJURIES in each Ship on the HOME STATION.

Dauntless.	Dee.	Defence.	Donegal.	Duke of Wellington.	Eagle.	Excellent.	Ferret.	Fisgard.	Formidable.	Fox.	Frederick William.	Ganges.	Gladiator.	Hastings.	Hector.	Heliconi.	Implacable.	Impregnable.
7	2	3	-	8	-	12	-	7	-	10	1	24	7	1	8	-	15	16
2	6	-	-	9	-	14	-	4	8	5	-	1	-	-	-	-	-	-
-	-	-	-	3	-	-	-	-	-	-	-	10	-	-	-	-	-	-
-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	3	-	-	-	-	-	1	-	1	-	1	-	1
-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	1	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-
1	-	2	-	3	-	2	-	2	-	-	-	3	1	1	4	-	1	2
-	-	-	-	-	-	2	-	-	-	-	-	1	3	-	-	-	-	-
-	-	-	-	2	-	-	-	-	-	-	-	-	-	1	-	-	1	-
2	-	-	-	-	-	-	-	2	-	1	-	1	1	-	1	-	-	-
-	-	2	-	1	-	4	-	1	-	-	-	1	-	-	2	3	-	3
-	-	-	1	1	-	4	-	1	-	-	-	-	-	-	-	-	1	-
-	5	7	6	13	2	25	-	9	3	1	3	13	9	5	10	2	5	16
1	3	1	3	11	1	22	-	3	8	5	2	2	1	3	1	1	-	4
19	12	61	126	87	4	179	17	31	52	8	90	96	16	5	52	11	60	134
3	1	14	7	46	-	58	2	8	5	2	6	a 77	10	1	25	-	21	17
-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
-	-	2	-	7	-	17	-	3	1	1	-	4	6	1	-	1	1	4
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	1	2	1	-	3	-	-	-	-	-	-	-	-	1	1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	3	-	1	2	-	1	1	-	-	-	-	2	7
-	-	-	-	d 1	-	-	-	-	-	1	-	1	2	-	-	-	1	-
-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-
-	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	-
1	2	-	46	19	3	121	1	10	15	6	3	38	11	2	11	4	10	30
4	3	2	-	5	-	20	5	-	4	3	1	17	7	2	1	-	6	6
-	-	1	1	-	1	6	-	-	-	-	-	-	-	-	1	-	-	1
-	-	-	1	2	-	2	1	1	1	-	-	1	2	-	1	-	3	4
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	1	-	-	-	-	-	7	1	-	-	-	-	-	-	-
20	1	6	17	75	-	70	2	19	13	3	13	4	18	-	38	8	1	-
4	-	2	1	27	-	40	-	-	-	1	3	1	7	-	9	-	-	5
6	2	1	8	19	-	21	1	22	4	2	-	5	2	1	6	2	7	4
7	-	1	6	14	-	27	-	12	4	-	2	4	4	1	10	2	3	5
-	-	1	-	1	-	7	-	1	-	-	-	-	-	1	5	-	-	1
-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
14	3	7	28	38	2	79	2	22	10	7	20	53	19	1	16	18	11	34
2	-	-	-	1	-	9	-	3	2	-	-	-	-	-	-	1	-	1
-	-	3	4	-	-	4	-	1	-	-	-	9	2	-	-	-	-	2
7	1	6	6	12	-	15	2	4	4	-	1	9	5	4	5	-	3	1
-	-	-	-	1	-	1	-	1	-	-	1	-	-	-	-	-	-	-
-	-	-	2	3	-	1	-	1	-	-	1	4	4	-	-	-	1	1
-	-	-	-	1	-	5	-	1	1	-	2	1	1	-	3	-	2	1
-	-	1	-	2	-	-	-	-	2	-	-	-	-	-	5	-	-	1
4	1	1	3	10	-	23	2	5	1	3	4	-	12	2	6	5	-	1
11	13	51	65	95	4	175	22	14	26	10	28	139	45	6	88	13	113	152
1	3	6	23	48	-	49	10	7	9	4	17	115	18	8	33	4	108	136
-	1	3	2	17	-	5	-	3	6	-	1	60	3	-	4	-	25	-
1	2	2	1	7	-	23	1	3	-	2	2	30	4	3	10	-	17	28
15	4	8	6	36	5	109	5	13	27	4	21	11	3	4	7	13	10	10
-	-	-	2	-	-	6	1	2	-	-	-	-	2	-	2	-	2	4
-	-	-	1	-	-	1	-	-	-	-	1	6	-	-	-	-	1	2
-	-	-	-	f 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	21	56	98	107	4	227	22	44	34	26	47	141	52	8	86	12	58	104
2	-	-	3	1	-	14	1	-	4	1	1	8	3	1	3	1	9	7
-	-	1	-	3	-	7	-	2	2	-	-	-	-	-	-	-	3	6
-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	1	-	-	-	-	-	-	-	6	-	-	-	-	-	-
167	89	250	469	742	26	1,420	97	266	248	113	273	903	279	63	456	104	502	752

continued at page 54.

d 1 Hæmatemesis. e 1 Ascaris, 1 Tænia. f Tænia.

TABLE, No. 6.—Showing the Number of Cases of all Diseases and - - - -

continued from page 53.

DISEASE OR INJURY.	Indus.	Irresistible.	Jackal.	Liberty.	Lion.	Liverpool.	Lizard.	Lord Clyde.	Martin.	Medusa.	Osborne.	Pallas.	Pembroke.	President.	Prince Albert.
Continued and Remittent Fever	7	–	–	–	4	–	1	–	1	–	1	9	1	–	1
Intermittent Fever	–	–	1	–	4	–	–	1	–	3	–	5	2	–	5
Vaccinia	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Small-pox	1	–	–	–	–	1	1	–	–	–	–	–	–	–	11
Scarlatina	–	–	–	–	2	–	–	1	–	–	–	–	–	–	–
Measles	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Varicella	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Brain	1	–	–	–	–	–	–	–	*g* 1	–	–	–	–	–	–
Apoplexy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Epilepsy	1	–	–	–	*h* 6	1	–	–	–	–	–	–	1	–	1
Paralysis	2	–	–	–	–	–	–	–	–	–	–	2	–	–	–
Insanity	2	1	–	–	1	–	–	–	–	–	–	–	3	–	1
Delirium Tremens	2	–	1	–	1	1	–	1	–	–	–	–	–	–	–
Neuralgia	2	–	–	–	–	5	–	1	–	1	–	–	–	–	–
Vertigo	15	–	–	–	–	–	–	1	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura	30	2	–	2	12	13	1	8	2	–	–	3	5	–	2
Phthisis and Hæmoptysis	11	–	–	–	5	2	–	–	–	–	–	3	1	–	–
Influenza and Catarrh	105	40	4	11	34	172	9	20	12	24	12	4	63	7	32
Cynanche	22	–	1	3	24	28	–	18	4	5	1	50	*a* 9	3	5
Asthma	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bronchocele	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Heart, Functional and Organic	7	2	2	–	5	3	–	–	1	–	1	3	1	1	1
Aneurism	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hæmorrhoids	3	2	–	–	1	3	1	2	–	–	–	–	–	–	–
Cancer	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Varix	3	–	–	1	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Stomach and Bowels	*i* 4	–	–	–	–	–	–	*i* 1	–	–	–	*m* 1	–	–	–
Cholera	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Dysentery	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Diarrhœa	58	2	4	72	16	34	9	15	23	13	6	56	22	9	22
Constipation and Colic	3	1	–	–	8	9	8	2	–	2	–	4	3	1	–
Inflammation of the Liver	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Jaundice	2	1	–	–	1	3	–	–	–	–	–	1	1	–	–
Splenitis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Bladder and Kidneys	2	–	–	–	1	–	–	–	1	–	–	–	–	–	–
Syphilis, Primary	44	13	–	1	5	47	3	17	3	6	3	26	18	–	20
Ditto - Secondary	14	8	–	–	3	11	–	8	–	–	–	12	2	–	1
Gonorrhœa	12	5	1	–	1	15	1	4	–	5	1	9	8	–	5
Orchitis	14	2	2	–	1	15	2	10	1	4	3	1	4	–	3
Stricture of the Urethra	8	1	–	–	3	1	–	2	–	1	–	–	–	–	1
Incontinence of Urine, &c.	–	2	–	–	–	2	–	1	–	–	–	1	–	–	–
Rheumatism	56	10	1	3	22	37	8	26	3	29	7	28	18	5	7
Gout	–	–	–	–	–	3	–	–	–	–	–	1	–	–	–
Disease of the Bones and Joints	3	–	–	–	–	–	–	4	1	–	–	5	–	–	1
Inflammation of the Eyes	9	4	–	–	3	11	–	2	2	1	1	4	6	–	3
Amaurosis and Cataract	2	–	–	–	–	–	–	–	*h* 5	–	–	–	–	–	–
Otitis and Deafness	–	–	–	–	–	1	–	–	2	–	–	1	1	–	–
Erysipelas	3	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Scrofula	2	–	–	–	–	–	–	4	–	–	–	1	3	–	–
Bubo (*Symp.*)	7	5	–	–	5	15	–	5	2	3	2	–	–	–	5
Phlegmon and Abscess	35	25	4	6	43	134	5	76	34	6	5	113	22	2	24
Ulcer	23	8	4	6	14	42	1	25	23	3	6	27	16	–	8
Psora	11	9	–	8	2	–	–	12	–	1	–	6	2	–	4
Eruptions, &c.	12	4	1	–	5	4	–	4	1	1	1	1	7	–	1
Dyspepsia and Debility	22	4	1	2	19	6	3	10	–	10	–	2	14	1	7
Headache, &c.	–	–	–	–	1	–	–	–	–	–	–	1	–	–	1
Dropsy	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Worms	–	–	–	–	–	–	–	–	–	–	–	*n* 2	–	–	–
Wounds and Injuries	110	26	5	9	52	155	12	105	18	23	11	61	31	2	29
Burns and Scalds	6	–	–	–	3	1	–	7	–	4	–	–	1	–	1
Hernia	10	2	–	–	–	1	–	–	–	–	–	–	–	–	–
Pyæmia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Suicide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Submersion	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Poisoning	–	–	–	–	–	–	*l* 2	–	–	–	–	–	–	–	–
Purpura	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TOTAL	693	179	33	124	314	776	67	393	140	145	61	453	266	35	202

g Catalepsy. *h* Hysteria. *i* Hæmatemesis.

Injuries in each Ship on the Home Station—*continued.*

Prince Consort.	Research.	Revenge.	Royal Adelaide.	Royal George.	Royal Sovereign.	St. George.	St. Vincent.	Saturn.	Sealark.	Squirrel.	Trafalgar.	Trincomalee.	Victoria and Albert.	Victory.	Wellesley.	Winchester.	Wivern.	TOTAL.
3	5	–	1	1	–	5	2	–	3	–	1	–	–	1	–	2	–	247
–	–	3	–	2	–	1	–	1	–	–	4	1	–	1	–	1	–	130
1	–	–	1	1	–	1	–	–	–	–	–	–	–	–	1	–	–	16
1	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1	–	–	29
–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	90
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	42
1	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	3
–	1	3	2	1	–	1	2	–	–	1	4	–	1	–	–	–	–	4
–	–	–	1	1	–	–	–	–	–	–	1	1	–	–	–	–	–	9
–	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	66
1	1	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	19
1	4	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	17
–	1	–	–	–	–	–	1	–	–	–	–	–	–	2	–	–	1	37
1	2	6	2	4	4	7	10	4	–	3	6	1	1	5	2	–	–	45
2	4	4	4	7	2	4	–	1	–	1	1	3	4	1	–	2	2	47
67	55	53	12	72	8	35	22	3	4	8	47	10	19	32	2	6	13	414
12	14	9	–	29	7	8	21	–	–	1	19	1	3	12	3	3	5	178
–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	–	2,957
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	783
1	1	1	2	1	–	1	–	–	1	–	1	–	–	2	1	1	–	7
–	–	–	–	3	1	–	1	–	–	–	2	1	–	–	1	–	3	1
1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	134
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	50
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	84
2	–	–	–	1	–	–	–	–	–	–	–	1	–	1	–	–	–	28
–	–	–	1	1	–	–	2	1	–	–	–	–	–	–	–	–	–	15
–	–	–	–	–	–	–	–	–	5	4	–	–	–	1	–	–	–	20
10	26	14	9	34	7	6	16	5	1	–	11	4	–	13	4	2	12	1,227
–	4	–	1	26	–	3	2	1	–	3	4	1	3	1	–	1	6	263
–	–	–	1	–	–	1	–	1	–	–	1	–	–	–	–	–	1	34
–	–	–	2	–	–	–	8	–	–	–	–	–	1	–	–	–	–	56
–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	1	–	–	–	–	2	–	–	–	–	–	–	–	–	–	21
17	1	6	15	22	12	38	24	1	–	–	10	–	3	27	11	–	27	1,134
10	4	2	8	7	2	10	–	1	–	–	5	–	–	17	–	–	2	327
32	7	2	3	10	3	7	10	–	–	–	1	–	1	7	4	–	9	434
3	4	12	7	3	–	5	12	–	–	–	11	–	–	3	–	1	2	333
1	–	1	–	2	–	–	1	–	–	–	–	–	–	4	–	–	–	64
1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	12
19	21	24	7	66	9	16	16	2	3	4	8	2	15	21	6	5	15	1,256
–	–	–	–	–	–	3	–	–	–	–	–	–	2	–	–	–	–	47
1	–	1	1	–	–	1	–	5	–	2	1	–	–	–	–	–	–	63
3	4	4	2	4	2	2	6	1	–	2	6	–	2	2	3	–	5	239
–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	17
3	–	–	1	–	–	–	5	–	–	–	–	–	–	1	2	1	1	44
–	–	–	1	2	–	–	3	1	–	–	1	–	–	–	–	–	–	45
–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	24
4	5	5	4	3	4	2	32	–	–	–	–	–	1	–	–	–	6	255
73	25	67	8	71	15	27	71	3	10	34	44	1	11	34	10	5	40	2,023
20	8	28	5	14	3	18	42	1	5	19	17	–	3	14	–	1	7	1,341
4	–	1	10	3	2	1	28	1	3	–	7	–	1	12	–	–	2	490
8	12	4	2	–	3	9	11	–	4	3	–	1	1	4	1	1	3	319
4	2	12	5	25	3	5	24	2	–	4	9	–	8	12	11	3	10	793
1	2	–	–	14	–	3	–	–	–	–	–	–	–	–	–	3	1	85
–	2	–	1	–	–	1	–	–	–	–	–	–	–	–	–	–	–	20
n 2	–	–	–	*n* 1	–	–	–	–	–	–	–	–	–	*n* 1	–	–	–	12
66	49	72	23	81	26	47	50	5	9	86	65	5	14	15	10	–	28	3,545
2	1	2	1	1	–	–	3	–	2	1	2	2	1	2	–	–	1	131
1	–	1	–	–	–	3	3	–	–	–	–	–	–	–	–	–	1	53
–	–	1	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	*l* 1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11
379	262	341	147	516	114	273	429	41	56	175	276	32	94	252	74	36	203	20,961

k Night Blindness. *l* By Fish. *m* Melæna. *n* Tænia.

MEDITERRANEAN STATION.

Mediterranean Station.

THE squadron employed on the Mediterranean Station in 1866, consisted of twenty-three vessels; viz., five iron-clads; one vessel of the first rate; one of the second rate; two of the fourth rate; one of the sixth rate; three sloops; two gun-vessels; four steam-vessels; three gun-boats; and one receiving ship, permanently stationed at Malta. The returns from fourteen of these vessels were for the whole year, and from the remainder for periods varying from three to ten months. The mean force corrected for time was 5,520, and the total number of cases entered on the sick-list 7,797, which is in the ratio of 1412·5 per 1,000 of mean force. Of these 230 were invalided, and thirty died, the former being in the ratio of 41·6 per 1,000, and the latter of 5·4. The ratios of cases and of invaliding were in excess of those of the preceding year, but the death-rate was much lower.

The daily loss of service from fever, including the exanthemata, was equal to eighteen men, or in the ratio of 3·1 per 1,000 of mean force; the daily sick-rate, from diseases of the brain and nervous system, was ·2; from diseases of the respiratory organs, 5·7; of the heart and bloodvessels, ·2; of the alimentary canal, 1·4; of the liver and spleen, ·2; of the genito-urinary organs, 5·5; from rheumatism, 3·6; diseases of the bones and joints, ·2; of the special senses, ·4; of the skin and cellular tissue, 15·1; from dyspepsia and debility, 1·4; and from wounds and injuries of various kinds, and hernia, 10·. The total number of men daily on the sick-list was 276·2; which is in the ratio of 50· per 1,000 of mean force, being an increase, compared with the preceding year, equal to 16·6 per 1,000.

Fevers.—There were 216 cases of continued and remittent fever, 120 of ague, two of small-pox, and one of measles under treatment during the year, and of these ten cases of primary fever and one of ague were invalided; and four cases of primary fever had a fatal termination. The average duration

MEDITERRANEAN STATION.

tion of each case of primary fever on board ship and in hospital was about five days; of each case of ague, between nine and ten days; of each case of small-pox, seventy-five days; and of the case of measles, fifty days.

Continued and Remittent Fever.—There were twelve cases of primary fever in the Arethusa, the majority of which occurred during the Michaelmas quarter of the year, when the vessel was lying off the Piræus. They appear in most instances to have been of great severity, the average duration of each case on the sick-list being about forty days. The surgeon* of the vessel makes the following observations on these cases:—

"Twelve cases of continued fever were placed on the sick-list between the 21st of July and the 24th of October, and seven of these were between the 5th and 17th of September, while lying off the Piræus. With two exceptions, they were all of a severe nature; in one the symptoms approached those of typhus, there being extreme prostration, delirium, and suppuration of the parotid glands of both sides; but the characteristic spots over the body were not observed. In two instances there was pneumonic complication. The fever was of the type which usually occurs in this locality, the disease being very insidious at the commencement, and in a few days reducing the vital powers to a state of extreme prostration. In all the cases convalescence was very tedious and protracted; in three instances rheumatism supervened, and was very obstinate. None of the cases proved fatal, and, with the exception of a midshipman whose case was slight, and brought on by exposure in the sun, shooting, all the cases occurred among the men. In them, however, there was no evidence of any exposure that could cause the disease."

There were six cases of primary fever in the Assurance, four of which are classed as continued and two as remittent. The average duration of each case of the former disease, on board ship, was sixteen days, and of the latter between nine and ten days; but one case of each form of fever was discharged to hospital, which would probably add considerably to the days' sickness. All these cases appear to have had a periodic tendency, and were doubtless due to exposure to malarious influences at Patras, Malta, and other places in the Mediterranean. The surgeon† of the vessel, in remarking on them, groups them with the cases of ague that occurred amongst the ship's company, and says:—

"Of the sixty-three cases of fever given, fifty-seven were distinctly

* Surgeon James J. Martin. † Surgeon C. Keenan.

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tinctly intermittent; the remaining six were of a primary character, which soon afterwards lapsed into the intermittent form. Fifty-six were discharged to duty, five sent to hospital, one invalided, and one now remains on the sick-list. There is no doubt that most of these cases were due to exposure to miasmata at Patras and at Malta; and also perhaps more remotely to the effect of service in the Danube in the previous year, soon after which fevers of a typhoid character prevailed in the ship. Since that time the ship can scarcely be said to have been entirely free from a great tendency to fevers of the intermittent form. It has been suspected that the state of the bilges, which sometimes smelled offensively whilst running the mails between the fleet and Malta during the very hot months of the summer, when little time was given to clean them, may have contributed its share towards the production of those fevers, or at least to their aggravation. This is a mere surmise, and it is difficult to say whether it is true or not; but when it is combined with the fact that so many assistant engineers and stokers, whose duties required them to pass a considerable part of their time in the engine-room or in the stoke-hold were affected, it would seem that there is some reason to suspect that there was something there more active than anywhere else in the ship in producing these fevers.

"The fever, in the great majority of cases, was of the intermittent type. In some, however, it was difficult to say whether the remittent or the intermittent form predominated. In a few of the primary cases, even a remission was scarcely perceptible. In the classification I have given I have endeavoured to keep as close to the symptoms as possible, naming the type in proportion as the intermissions were complete, incomplete, or entirely wanting.

"The treatment adopted in these cases was very simple. It consisted at the outset in a purgative of colocynth and calomel, followed by small doses of quinine and Epsom salts, two grains of the former and about two drachms of the latter every three or four hours, until free but gentle action of the bowels was induced. This seemed to me to be the more necessary as the liver in such cases becomes very often deranged, as is evidenced by the bilious diarrhœa and vomiting which not unfrequently preceded or accompanied the attack. Occasionally one of the bitter infusions was substituted for the quinine, and it seemed to me to answer very well. After the bowels had been well cleared out, quinine in three grain doses was given three times a day until the periodicity of the attacks passed off. Then one of the bitter infusions, either alone or combined with dilute nitric acid, or with tincture of the muriate of iron, was used with the best possible effect. Occasionally the liq. arsenit. potassæ was used, and seemed to act, as far as I could judge, nearly as well as quinine; five minims, in bitter infusion, were given three times a day. This was in the main the treatment adopted, varying it necessarily according to the state of the patient, as when diarrhœa was present, which not unfrequently happened. Then the quinine was alternated with astringents and occasional doses of castor oil. When there was pain in the stomach or bowels, or a tendency to slight congestion of

of the lungs, frequent sinapisms were applied. In several instances, when the fits of ague were continually recurring, in spite of the above treatment, quinine was given in ten grain doses to avert the paroxysms, and this treatment was very successful."

Three trifling cases of primary fever occurred in the Cossack. The only one of any moment was in the person of an officer who had incautiously exposed himself to the sun while shooting at Jaffa. The other cases were ephemeral.

In the Enterprise there were six cases of primary fever, four of which are returned as continued, and two as ephemeral. With reference to the former type of fever the surgeon* says:—

"Four cases were entered on the list, of which one was sent to hospital on the third day. The three treated on board were of the mild continued type, free from enteric complication, or characteristic rash. The principal symptoms were a hot dry skin, headache, aching of the eyeballs, and pain in the spine and limbs, following rigors more or less distinct. In three of the cases the tongue was covered with a creamy fur, and in the fourth (an officer) it was thickly coated, dry and brown, and all were tremulous when protruded. The pulse also was frequent and compressible. With one exception, in which an exacerbation took place on the fifth day, having been preceded by a partial remission, the symptoms subsided in from five to eleven days, leaving a certain amount of nervous prostration behind which necessitated a liberal allowance of wine and nutritious diet during convalesence. Two of the cases occurred in January, while the ship was in Malta dock, the ship's company living on board at the time. It was not considered necessary to turn over to the Hibernia, as our stay in dock was not expected to extend beyond two or three days. Nevertheless the discovery of defects protracted from day to day our stay in this peculiarly unhealthy locality, till we had been there within a few hours of nineteen days. I need scarcely allude to the well known subject of the putrid water of Dockyard Creek, or the pestiferous odours emanating from the sewer which empties itself just without the dock gates; but I can add my testimony to that of others similarly circumstanced to the evil results upon the ship's company. Probably in this case it was more strongly felt than might have been in a larger ship, as she was sunk down as in a well, considerably below the level of the yard, and the weather was wet and damp. Between two and three feet of stinking water covered the floor of the dock, but it was regularly changed every day by water equally odorous from the neighbourhood of the sewer. The first of the two cases occurred in a boy, who was placed on the list for a glass wound of the foot, when we had been five days in dock. Being

* Surgeon James Thomson.

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Being employed on the ship's side, the stage on which he and three others were sitting was carried away, precipitating them into the water. His clothes smelt strongly, and were of course changed and washed, and the wound, which was unimportant, dressed. The same evening febrile symptoms were ushered in, which I at first believed to be catarrhal, but as they assumed more distinctly those of continued fever I removed him to hospital. I should mention moreover in this case, that the boy had not fully recovered his strength from a previous attack of fever, having been discharged on the 14th of December, after being thirty days on the sick-list. The second case occurred on the 16th of January (the sixteenth day in dock), in the person of an able-seaman, who remained under treatment thirteen days. The only peculiarity in this case was the more gradual assumption of febrile symptoms, and the absence of well-marked rigors. The other two cases occurred in the Adriatic, the first on the 24th of June, the day after leaving Corfu, in the person of an officer. He suffered violent pains in the head and spine the previous evening, which were attributable to exposure to the sun's rays for three hours while getting under weigh. The rays were powerful though slanting, as it was late in the afternoon, and the awnings had been removed. Distinct rigors supervened during the night, followed by burning heat of skin, rapid soft pulse, and intense nervous restlessness. He was unable to sleep in his cabin from the noise made by the screw, and when placed in a cot in the battery, the ticking of the clock was annoying to him, though much less so. Had I not been aware of an idiosyncratic intolerance of pain or restraint, I would have suspected cerebral mischief. The tongue was thickly coated, dry and brown, and on the third day he complained of pain in the region of the liver. The bowels were constipated, and when relieved the febrile symptoms subsided. He was put off the list on the ninth day while making a good convalescence. The remaining case was put on the list on the 13th of July, at Ancona, and occurred in the person of a Maltese stoker. The ship had been in the harbour seven days when he complained, and, as previously remarked, no leave was given to the ship's company. The ship, however, lay but a short distance from the shore, and the harbour being crowded with shipping, the water was generally foul and odorous, excepting when a sea breeze entered the mouth of the harbour. A light southerly breeze rendered the odours of the old and undrained part of the town very perceptible on board. There appeared to be no distinct rigor in this case, and the man acknowledged to having felt unwell the whole of the previous day. In addition to great headache there was also hepatic pain. The heat of the abdomen was burning and pungent, but there was neither gurgling nor pain in the iliac fossæ, nor spots. The pulse was firmer than in the other cases, and there were more undoubted symptoms of cerebral implication, evidenced by delirium from which he could not always be roused; rolling the head laboriously from side to side, and a somewhat dilated state of the pupils. The application of ice to the shaved scalp, in addition to the ordinary treatment, had a wonderfully beneficial effect. The head and febrile symptoms generally subsided on the eighth day after his admission,

admission, and he was discharged to light day duty on the sixteenth day. There was in this case a greater amount of nervous prostration, and of course a more tedious convalescence. In three of the four cases, it will be seen fever followed exposure to one of its most fruitful sources, the presence in the air of putrescent organic matter given off by the sewage of a large town. In the other case it may be doubted whether it was one of true idiopathic fever at all, or whether the symptoms might not, most of them, be attributed to exposure to the heat of the sun. If this exposure really caused the disease, which I think can scarcely be denied, it is remarkable so few should suffer out of a large number placed under circumstances, nearly if not quite identical.

"Two cases of ephemeral fever were placed on the list, but do not merit particular notice. The symptoms at the commencement were threatening, but passed off entirely within thirty-six hours."

There were two cases of primary fever in the Firefly, but although one was twenty-four, and the other fifteen days on the sick-list, they would not appear to have been of much importance, as no notice is taken of them.

In the Gibraltar there were eleven cases of primary fever, nine of which are classed as febricula, and, two as remittent. The average duration of each case of the former type of disease on board ship was about twelve days, and of the latter about sixteen; but one of these was discharged to hospital. One of the cases of febricula which occurred when the ship was at Patras, presented some of the characteristics of enteric fever, and there were indistinct roseolar spots on the abdomen. The same symptoms in even a more aggravated form occurred at the same time in a marine who was placed on the sick-list with catarrhal symptoms, and appears on the nosological table under that head.

There were seven cases of primary fever in the *Hibernia*. With one exception they were of a mild character, but in that instance the case was one of enteric fever, occurring in the person of a young officer who was discharged to hospital, it being deemed desirable to remove him from the ship where he was exposed to the foul emanations from a sewer which emptied itself within a few feet of the scuttle of his cabin. He made a rapid recovery in hospital.

There were seven cases of primary fever in the Phœbe, all of a very trifling character.

There were twenty-one cases of primary fever in the Prince Consort, fourteen of which are classed as continued,

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and seven as febricula or ephemeral fever. With reference to these cases the surgeon* makes the following observations:—

"On the 23rd of July the ship arrived at Malta, took up moorings in the grand harbour, just at the mouth of the French Creek, near the densely inhabited shore, and forthwith encountered a mean temperature, fifteen degrees higher than had been left seventeen days before. At the same time leave was freely granted, and attended with the usual dissipation and exposure. Under these circumstances it could scarcely be a matter of surprise that febrile diseases should make their appearance. The character of the complaints varied from a severe form closely approximating to typhus, to a state of cachexia, in which an insidious febrile action was almost masked by dyspeptic symptoms, and those of general ill-health, debility, and functional derangement.

"Beyond the climatic influences above referred to, there are no obviously assignable causes for the appearance of this class of complaints on board. Fever, as far as could be learnt, was not particularly prevalent on the island (where, however, it appears to be more or less endemic), and in one instance the man affected had not been out of the ship since leaving England. Nor could it fairly be charged to any local or peculiar condition on board the ship, which differed in no respect from her previous circumstances, although the men had been unusually crowded on the passage to Malta, by a large number of supernumeraries and a large quantity of stores. In one case, that of an officer, there was exposure to to considerable fatigue in the sun, in a long day's walking excursion at Patras. He had been in good health before, and does not believe that he had exposed himself to any source of infection. The earlier stages of his attack differed from those of the other patients, in being of a clearly remittent type, passing gradually into the continued form, attended with considerable cerebral congestion and irritation. He was discharged to hospital, and informs me that he subsequently suffered greatly from diarrhœa and other abdominal symptoms, but without the appearance of any specific rash. He eventually made a good recovery, and has suffered no unpleasant sequelæ, unless a very general falling off of the hair may be so considered. Several cases treated on board presented a mixed character of slight febrile action, and very great and disproportionate depression and functional derangement; the period of actual treatment on the sick-list varying from ten to twenty-five days, but a condition of indifferent health extending much longer.

"Two cases of considerable severity were characterised by the occurrence of periodical profuse night sweats. These added greatly to the debility and sense of exhaustion of the patients, and contributed principally to detain one of them on the list for ninety-two days. In this the odour was acid and fœtid, and the debility extreme. In the other case the sweats were more partial, affecting chiefly the head, and causing the hair to appear as if drenched with water.

* Surgeon Stephen Bowden, M.D.

water. In both I am inclined to think from the condition of the urinary secretion, previous history, &c., that the rheumatic diathesis extensively prevailed, which, however, did not become localised. The cases returned as febricula, or ephemeral fever, averaged little more than four days' sickness, but differed greatly in severity. In some, the fire, as it were, burnt itself out quickly and fiercely; in others the action was slower and lingering. In my own case, the earlier symptoms such as rigors, complete prostration of mind and body, heat of the head and trunk, cold extremities, want of sleep and appetite, were very severe, but not of more than five days' duration. They left, however, an impaired condition of health and strength, which required as many weeks to restore. Convalescence was retarded by a severe attack of cynanche tonsillaris, conjunctivitis, and other quasi-inflammatory affections of the mucous membranes. All the severer cases were attended with more or less gastro-intestinal affection, indicated by the appearance of the tongue, anorexia, nausea, diarrhœa, abdominal pain, distension, &c. One case occurring in the person of an officer was complicated with old standing enlargement of the liver; this became additionally congested and prominent during the more acute stages of his attack. There was a general tendency to an asthenic condition, and a freedom from cerebral and pectoral affections. As to the treatment and its results nothing very novel or satisfactory has to be recorded. Active depletory measures would have been certainly inadmissible, but neither were strong tonics, quinine, &c., well borne. Saline medicines, mercurial alteratives, and the antiphlogistic regimen in the earlier, and mild tonics, wine, &c., in the later stages were the usual therapeutic agents exhibited, with various local applications (hot poultices, turpentine stupes) as required.

"With regard to the spread of this class of complaints, viz., contagion or infection, all that can be said pertinent to the subject is, that an officer and his servant, both of whom had been much about the person of the officer referred to above as having been sent to hospital, suffered from a milder form of fever, and were under treatment on board for periods respectively of twenty and thirty-two days. None of the attendants, however, on the worst case entered on the sick-list, and treated on board in the acute stage for the longest time, suffered, nor, indeed, from any of the other cases. For this patient, it may be mentioned, a sort of deck-house was erected abaft the mizen-mast, which separated him from the rest of the ship's company, and placed the patient himself in a more favourable position."

There were five cases of primary fever in the Racer, most of which appear to have been of considerable severity. They are classed as being of the continued type, and the average duration of each case was about twenty-one days. Three of them appear to have closely resembled enteric fever, in the abdominal tenderness, diarrhœa, and prostration by which they were accompanied. One of these occurred in the Michaelmas quarter of the year, in the person of a young

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officer, who first complained of febrile symptoms on his return from a cricket-match at Corfu, played under a very hot sun. At first it was hoped that the case would prove one of simple continued fever, but as it progressed the character of enteric fever became fully developed. There was great irritability of stomach; tenderness over the right iliac region, and purging of loose, pale-coloured stools. On the fourteenth day the characteristic eruption made its appearance; on the eighteenth day the body was covered with sudamina; previous to this gurgling was heard on pressure being applied to the right iliac region. On the twenty-first day he was free from fever, and he afterwards, in hospital, made a steady but slow convalescence. The second case occurred when the ship was on the passage from Malta to the coast of Syria. The man had been on leave at Malta, and he stated that he suffered from diarrhœa for some few days before applying for advice. Debility in this case was very great, and the convalescence slow.

"There seemed to be little doubt," the surgeon* says, "that this affection was not due in either instance to causes within the ship, but rather to exposure to poison when on shore. Neither can the cricket-match which immediately preceded the first case be looked on as more than assisting in inducing the attack."

During the Christmas quarter of the year, the third case of fever, apparently of an enteric character, was admitted to the sick-list in the person of a petty officer who had been on leave from the 18th to the 31st of October, during which time he had visited Jerusalem, the Dead Sea, and other places in Palestine, being on horseback on an average five hours daily under a hot sun. On the 6th of November he applied for medicine, stating that whilst away he had suffered from diarrhœa for a few days, and that his bowels were now confined for some time. He also complained of general malaise. An aperient was administered, after the action of which he felt much better, but on the following day he complained of pain in the back and limbs, aching of the head and eyes, anorexia, and alternate rigors and flushing. The skin was hot, the tongue thickly coated with a brown fur, and the pulse eighty. On the 10th of November he was delirious, and the fever ran very high, although the pulse was never very much accelerated; its highest range being 103 in the morning, and 108 in the evening. On the eleventh day there was

* Surgeon William Roche.

was much tenderness over the right iliac fossa, but no trace of eruption of any kind. The bowels were frequently moved. On the thirteenth day the report was :—

"Had a quiet night; complains of pain all over the abdomen; tenderness on pressure very marked in the iliac region. No appearance of spots; skin, dry and harsh. Tongue, drier and browner. Bowels twice open. Pulse, 103 in the morning; 108, in the evening."

On the sixteenth day, as the vessel was about to proceed to sea, and the weather was cold, wet, and stormy, he was discharged to the Russian hospital at Beyrout, where he remained until the end of the year. For nearly a week after his admission to hospital his bowels continued relaxed, but after that he began to improve.

There were nineteen cases of primary fever in the Resistance, four of which are classed as continued, and fifteen as remittent. The average duration of each case of the former was about twenty days, and of the latter about fourteen days. The cases were tolerably equally distributed over the various quarters of the year, and they appear to have presented no features of peculiar interest.

There were forty-six cases of primary fever in the Royal Oak, one of which proved fatal. Thirty-six of them are classed as continued; six as ephemeral, and one as remittent; there were also three cases of debility following fever. The surgeon says :—

"Of the cases of continued fever, six exhibited typhoid symptoms, but in a very mild degree; excepting in one instance, that of a young seaman, who was sent to hospital the day after presenting himself, and died there on the sixth day of his illness. It is to be noted that he was taken ill on the 28th of May, when the temperature was getting high, and the ventilation consequently less perfect, and when all hands still messed on the lower deck. It may be here remarked that the temperature in the axilla in this case was very high from the first, viz., 106° on the first day, and 107° on the second. The first case of typhoid fever occurred on the 8th of January, and the next not until the 28th of May; the others as follows: 28th of May; 6th of June; 15th of July; and 22nd of July. It is scarcely possible that the second case could have any relation to the first, which was sent to hospital on the 8th of January, although the others may have been, and indeed probably were, transmitted. The remaining cases of continued fever were all mild, a few of them showing irregular remissions, and a few also attended or followed by symptoms of rheumatism.

"On a comparison with 1865, the following notable features are

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apparent with regard to fever. There were fifty-five cases entered on the sick-list in that year to forty-three in this. There were twelve cases of typhoid fever, with others subsequently developed in hospital, to six in this year. Many cases of last year were attended or followed by rheumatism; very few this. Three deaths occurred last year on board to one in hospital this year. The amount of invaliding for rheumatism and debility after fever last year was very great, compared to the number of cases. Two cases only have been invalided during the period of this journal, on account of fever contracted during the year; for the eleven cases of rheumatism and fever invalided in the first quarter were the sequelæ of cases which occurred during the previous autumn. Another notable feature is, that cases of fever began still earlier this season than last; but, instead of increasing steadily in number and severity as last year till late in autumn, only four slight cases occurred subsequently to the 8th of September. Between the 8th of April and the 17th of June 1866, sixteen cases of fever were added to the list, four of them typhoid; on the 18th of June the lower deck was relieved of 130 men, and from that time a decided improvement set in, and soon after the beginning of September fever had well-nigh disappeared."

In the "Statistical Abstract of the Health of the Royal Navy" for 1864-65 it was stated that this vessel was commissioned in May 1863, that she had always been an unhealthy ship, and that, according to the opinion of the surgeon, the berthing accommodation for the ship's company was quite inadequate to the complement:—that in September 1864 an inquiry into the sanitary condition of the vessel had been ordered by the Commander-in-Chief, which had resulted in a report that the principal defects were a deficiency of light and fresh air on the lower deck on which the men were berthed; and that the presence of the sick bay on the lower deck was also strongly objected to, not only as disadvantageous to the sick, but from its bulkhead obstructing and interfering with the air on the lower deck. The result of the report was that various important improvements were made, which no doubt exerted a beneficial influence on the health of the men. For some time the improvement continued to be very decided, but in 1865 enteric fever having been introduced into the ship at Malta, and caused much sickness and considerable mortality, another sanitary inquiry was subsequently ordered, with reference to which the surgeon makes the following observations:—

"It will be remembered that in the autumn of 1865, twenty-six additional scuttles were opened into the lower deck of the Royal Oak; but that doubts were still expressed as to the adequacy of this provision greatly to improve the health of the crew; on the 10th of April another sanitary inquiry was ordered, the Committee making certain

certain recommendations, in consequence of which 130 men were removed to the main deck to mess, an additional number to sleep there; the majority of the men's bags were removed to an empty space forward, (once the sick berth,) without interfering with the circulation of air from the ventilating tubes; and additional openings were made in the funnel casing, both on the main and lower decks. The effect on the lower deck was that every third table forward was removed, leaving a clear open space between every two, excepting where, abaft, five tables, including all the marines, remained crowded together as before. The gun-room, not included in the recommendation, was enlarged subsequently by order of the Commander-in-Chief, but as the number in that mess has been since still further increased, the advantage felt at first has not continued; the general changes were completed, and the crew of 130 men moved to the main deck by the 16th of June."

In remarking on the beneficial influence exercised by these changes on the health of the ship's company, he makes the following observations in the Return for the quarter terminating on the 30th of September:—

"In September 1865 the average daily sick-list was forty-four; in September 1866, only twenty-two; so that while the former showed a great deterioration of health as the autumn advanced, the latter actually shows an improvement in the summer and spring; so that on the last day of the quarter this year the sick-list numbers only sixteen, as against forty-two last year, the complaints in the latter being infinitely more virulent. Not only so, but whereas the Royal Oak has during great part of her previous history, especially in summer and autumn, exhibited, on almost all occasions, a larger sick-list than most of the ships in company, she shows now generally the smallest. This result is as gratifying as it is, I venture to say, highly instructive, for I have no manner of doubt that it is mainly due to the removal of 130 men to the main deck to mess, as mentioned in last return, with an additional number sleeping there. That perfect health has not been obtained, that fever and rheumatism have not disappeared, or greatly decreased even to what they now are, is owing mainly, as I believe, to the principle of the segregation of the crew not being carried out to its fullest possible extent. My recommendation was that 200 at least should mess on the main deck, for which there appears to me to be more than ample space, possibly at the risk of some inconvenience in gun drill. The removal of the men from the lower deck was at first a highly unpopular measure, but I believe that the men themselves are now sensible of its full benefit, if any such excuse should ever be allowed to stand in the way of preserving health or saving life, any more than prejudice, the appearance of the ship, or mere inconvenience. The marines with whom it seems to have been most unpopular, and who were consequently not removed, and who, as before stated, are now the most crowded, appear generally in much less robust health than the rest of the crew, and notably their complaints have been more asthenic

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in character, while I believe the stokers have much improved. I have said that I believe the great improvement in the general health was 'mainly' due to the course named, as it is possible others may have contributed to this effect; some subtle general atmospheric difference evidently makes one season better than another. The ship has also been in a different position, though otherwise in much the same circumstances as last year. She certainly left Malta Harbour earlier, having been a fortnight at sea, and at anchor in Comino Channel early in June; finally leaving the islands on the 15th of that month for the summer cruize. Her anchorages were thereafter, Patras, Zante, Argostoli, and Cagliari, with about three weeks actually spent at sea. It would be difficult to point out any topographical characteristics which make these places superior in a sanitary point of view to Barcelona, Spezia, Castellamare, or Palermo, which were our principal ports last year. The neighbourhoods of Syracuse, Argostoli, and Cagliari appear to be much subject to fever from the marshes and lagoons, but our stay at none of them was long enough, nor our position near enough, to be brought much under their influence, and it is at least certain that all the squadron on both occasions were placed in the same circumstances."

At the termination of the year the beneficial effects of the various improvements that had been made continued to be felt.

"A steady improvement in the general health of the crew of this ship has continued during the whole period of this return (the Christmas quarter), and the number entered on the sick-list is much smaller than during any quarter of the entire commission. The average daily number on the sick-list has been about nineteen, and it has ranged from thirty to seven, a smaller per-centage than most of the other ships of the squadron. At present it is again somewhat higher, chiefly, as will be observed, from accidents. The table presents a remarkable contrast to that of the same quarter last year, when fever, diarrhœa, and other complaints so largely prevailed; three cases of fever only have been entered on the list, and two of these were very slight and only of eight days' duration. Bowel complaints, rheumatism, phlegmon, and abscess, have been little prevalent and very mild; as fever and the several complaints just mentioned have been marked features in former returns, their conspicuous absence in this indicates a most decided and radical change, and the immunity from them, must, as I believe, be mainly attributed to the larger amount of cubic space allotted to each man, and the freer introduction of fresh air to the lower deck."

These observations are of great value, and the whole history of the Royal Oak, during the commission, is full of instruction, showing the conditions on board ship, which may be considered most obnoxious to the health of the crew, and illustrating, in a most practical and gratifying manner, the almost immediate advantages obtained by their removal.

There

There were three cases of primary fever in the Tyrian, all of them being of a trifling and ephemeral character. The average duration of each case was four days.

In the Victoria there were sixty-one cases of primary fever, twenty-five of which are classed as continued, and thirty-six as febricula. The average duration of each case of the former type, on board ship, was about forty-seven days, but three of them were discharged to hospital. The average duration of each case of febricula was over ten days. Two cases of continued fever proved fatal. Under the head of fever, the surgeon* writes—

"The returns under this heading correspond in number, very closely, to those of last year, the febriculæ being somewhat more numerous in the present. The continued type of fever occurring in 1865 was considerably more severe in many of the cases than that of this year. Eight were sent to hospital at Malta, and several severe cases were treated on board during our visit to the coast of Spain; whereas this season, with the exception of two fatal cases, one on board at Patras, the other in Bighi hospital, no very serious attacks were seen.

"The type was that usually observed in the Mediterranean, continued febrile phenomena, with occasionally a tendency to remission; in some, cerebral symptoms; in others, enteric; and many experienced slight pulmonary congestion. None of the cases that have occurred on board here, this year, have been accompanied by spots or skin rashes of any kind. The worst feature in all our cases, of any severity, is the slow, tedious convalescence; in a few, rendered more so by rheumatic complications, general debility, and weariness of the limbs, which outlasts all other symptoms of indisposition, and is the most frequent source of complaint. In a few, general cachexia supervenes, to remedy which, removal from the station appears to be the most effectual, if not the only certain, means of restoring the affected to sound health. In some few of the cases where the depression appears less marked, a course of tonic treatment, with a generous dietary, has rapidly exercised a most beneficial influence.

"During the first quarter a bad case of continued fever occurred, in which the cerebral symptoms were unusually prominent; in addition to which, there was pulmonary congestion likewise. The general features of the case very much resembled the typhus type of fever. He was sent to Bighi hospital, where he died. When at Patras a marine died of continued fever, which I have returned as a case of typhoid. He was a weakly subject, and had been on leave, undergoing sun exposure, and drinking immediately before his attack. The vital powers appeared crushed from the commencement

* Surgeon James G. T. Forbes.

Mediterranean Station.

ment of his illness, and marked tympanitic distension of the abdomen occurred a day previous to his death.

"To the number of cases under the head of febricula many more might be added, as many of those classed with catarrh were so associated with ephemeral feverishness, that it was difficult to decide in which section to place them. The local manifestations, however, were sufficiently marked to justify their being viewed as catarrhal attacks. The usual phenomena observed in the cases I have entered as febricula, were simply feverishness, preceded by chills or rigors, headache, aching limbs and feeling of weariness, a coated tongue, loss of appetite, increased thirst, and irregular bowels. Free action of the bowels or skin usually terminated the febrile excitement in a few days, and the patient in most instances recovered rapidly his lost strength."

The two cases of primary fever, in the Wizard, were of an ephemeral character.

Intermittent Fever.—There was a slight increase in the ratio of cases of ague compared with the previous year. The vessel which suffered most from this form of fever was the Assurance, in which there were fifty-seven cases. They have already, however, been referred to in remarking on the cases of primary fever in that ship.

Small-pox.—There was a single case of small-pox in the Gibraltar, and one in the Hydra. In neither instance could the source from whence the disease was contracted be satisfactorily traced. The following is the report of the staff-surgeon* of the Gibraltar, on the case which came under his notice.

"The case of small-pox was interesting from the total absence of any premonitory symptoms. The patient, a seaman, was employed at the heavy work of coaling ship at Gibraltar until 11 p.m. of the 14th of December. On the morning of the 15th he felt rather unwell, and noticed some spots on his face, but was still well enough not to apply for assistance. When he presented himself in the morning of the 16th, the general malaise was the only thing at first noticed, the morning being so dark that candle-light was required, and he did not mention nor allude to the eruption. However, the malaise was so marked that he was ordered to remain in the sick bay. The next peculiarity was the great amount of pustules, with scarcely any general disturbance after the first day. The pustules on the face were so thick, that so far as they were concerned, the case might almost have been called confluent small-pox. However, from the first day he was put on the sick-list, until he was sent to hospital

* Staff-Surgeon Charles McShane.

hospital on the 9th day, not one uncomfortable symptom occurred, setting aside the inconvenience caused by the eruption.

"The other interesting feature of the case is the origin of the disease. The man had not been on shore for three months, and did not belong to a boat, but, out of the whole of his mess, was the only one on whose arm a cicatrix, more or less distinct, was not traceable. One man belonging to the mess was married, and his wife, with three young children, lived at Malta. This man left his family on the 5th of December, the day before the ship sailed for England, and stated that wife and children were all in perfect health. Seventeen military invalids were embarked at Malta, but the origin of the infection could in no way be traced to them. It is a common practice among seamen, in the Mediterranean fleet, to have their clothes washed on shore. This man was in the habit of doing so, and this seems to have been the source of the infection."

In the Hydra also, the origin of the disease was very doubtful. The surgeon* says:—

"One solitary case of small-pox was placed on the sick-list. The disease was contracted at Malta, in the most mysterious manner. I could not trace any case of it either among the garrison or townspeople; the country districts were also exempt from it, and the only explanation I can give is, that some hadjis or pilgrims for Mecca had been wandering about the crowded marina of Valetta; and as it is a well-known fact that small-pox is always more or less epidemic in the interior of Africa, this man might have accidently touched a hadji who had recently recovered from the disease. The symptoms were mild, and the disease presented the discrete form. Immediately on its being recognised he was discharged to hospital."

No reference is made as to this man's having been previously vaccinated, or otherwise.

Measles.—A single case of measles occurred in the Arethusa, at Malta. The man had been ashore for forty-eight hours on the Isola side of the harbour, where the disease was prevalent at the time. The case presented some peculiarities, the first symptoms being those of pleurodynia with general pyrexia, and the characteristic eruption not making its appearance until the 10th day after his admission to the sick-list.

Diseases of the Brain and Nervous System.—There was a fractional increase in the ratio of cases coming under this head, compared with the preceding year; but there was a considerable increase both in the invaliding and death-rates. Seventy-

* Surgeon Owen J. Llewellyn.

Mediterranean Station.

Seventy-four cases altogether of various forms of disease were under treatment, twenty-three of which were invalided, and five terminated fatally.

There were three fatal cases of apoplexy: one of these occurred in the person of a marine of the Assurance, who was placed on the sick-list on the 22nd of August, for an attack of epididymitis, the cause of which was not very apparent. On the 25th of August he complained of severe headache, especially at the vertex and back of the head, for which he was prescribed a brisk purgative, and treated otherwise as for aguish headache. On the morning of the 26th, after having what was described as a "fit," hemiplegia set in, when nearly all power of motion in the left side of the face and body was lost; the tongue was protruded towards the affected side, and his speech became thick and indistinct. On the morning of the following day, coma, with slight convulsions, set in, and he died a few hours afterwards. On post-mortem examination of the body, old pleuritic adhesions were found, and the liver was enlarged and congested, but otherwise the viscera of the trunk appeared healthy. The ventricles of the brain were greatly distended with a sero-sanguineous fluid, the choroid plexus and veins within the velum interpositum being gorged with blood; the rest of the brain was healthy; the body was well nourished. He was very bald for his age (33), and it was supposed that he had exposed himself to the sun, some time before his death.

A fatal case of apoplexy occurred in the Caledonia: the subject of it, a seaman, 33 years of age, and of full habit of body, was carried into the sick bay at 3.30 one morning, having been found lying on the lower deck, with evidences of recent vomiting about him. When seen, he was quite insensible; the surface of the body was cold, the pulse at the wrist was hardly perceptible, and some stertor accompanied the breathing. There was no evidence of any injury to the head. Stimulants failed to induce reaction, and he died within an hour. No post-mortem examination of the body was made.

The third case of apoplexy occurred in the person of an officer of the Wizard, who was found lying insensible on the floor of his cabin, breathing stertorously, and almost pulseless; shortly afterwards he became quite comatose, and remained so for some time. On recovering consciousness he was at once conveyed to the hospital. On admission he was quite

quite rational, but spoke slowly and indistinctly; the pulse was so feeble as to be almost imperceptible; the skin rather cool. In the course of the afternoon he was purged several times, and he spoke with more difficulty; the pulse and the temperature had, however, improved. About 9 p.m. he was scarcely conscious; the breathing became oppressed, and he shortly afterwards expired. On post-mortem examination of the body, the membranes of the brain were found a good deal congested, and there was considerable effusion into the ventricles and sub-arachnoid spaces. The liver was of a bright yellow colour throughout its entire substance, from fatty degeneration; the kidneys were much congested, and the left one somewhat enlarged; there was a great deposit of fat in the abdominal walls and also in the omentum.

There were nine cases of delirium tremens in the squadron, three of which occurred in the persons of commissioned officers; one in a petty officer; two in stokers; one in a bandsman; one in a marine; and the rating in one instance is not given; two of the cases occurring in the persons of commissioned officers proved fatal. In both, intemperance had been long indulged in to a great extent.

Diseases of the Organs of Respiration.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, and the death-rate was considerably lower. There was an increase, however, in the ratio of invaliding. It will be observed in Table I., that forty-five cases of phthisis were invalided, and three proved fatal, while thirty-five only appear to have been under treatment. This apparent discrepancy arises from the fact, that in many cases patients came on the sick-list labouring under other diseases, and during the course of their treatment phthisis became developed, for which they were invalided. This result very often follows upon an attack of what is known as Mediterranean fever, which appears to have a remarkable tendency to bring into activity the latent germs of phthisical disease.

Diseases of the Heart and Bloodvessels.—There was a considerable reduction in the different ratios under this head, compared with 1865. Of fifteen cases of functional or organic disease of the heart, twelve were invalided, and one died; and there was one death from aneurism.

The fatal case of heart disease occurred in the person of a seaman of the Cossack, of a marked hæmorrhagic diathesis.

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He was first entered on the sick-list for a severe attack of epistaxis, which was checked with some difficulty. This recurred again and again, and was associated with œdema of the feet and ankles and ecchymotic patches on the legs; there was also some ascites. The urine was not albuminous at first, nor was there any reason to suspect disease of the kidneys. There was no sponginess of the gums; there was a bruit with the first sound of the heart. In this condition he was discharged to Malta Hospital, from whence he was invalided, and discharged to the Megæra, for a passage to England. He was ultimately sent to Haslar Hospital, where he died. On his discharge from Malta Hospital to the Megæra, the following report of his case was sent with him, by the Deputy Inspector General * of the Hospital:—

"This patient is in a very critical condition, being extremely debilitated, and subject to attacks of epistaxis, cutaneous petechiæ, and other forms of passive hæmorrhage. There is œdema of the lower extremities, and an abnormal quantity of fluid in the sac of the peritoneum. There is a slight systolic bruit audible at the base of the heart; the impulse is increased, and the sounds are heard over an unnaturally extensive space. Bronchial breathing and bronchophony exist in certain parts of both lungs, especially in the subclavian region. His urine at first possessed a smoky appearance, but its tint is now natural, and it is free from albumen. A good deal of tympanitis has existed throughout. He has been treated with various ferruginous preparations, and especially the citrate of iron and ammonia; vinum ferri, and tincture of the perchloride of iron, with sedatives at bedtime; wine, porter, and good diet; but nevertheless he has rather retrograded."

The report of the surgeon† of the Megæra, on his transferring him to Haslar Hospital, is as follows:—

"Since the patient came on board he has remained in the same asthenic condition. The ascitic effusion is somewhat diminished. On examination, the urine was found to be acid in reaction; of specific gravity, 1·007, and loaded with albumen. His appetite has continued excellent."

In Haslar he gradually sank and died exhausted, seven days after his admission. The body does not appear to have been examined after death.

The fatal case of aneurism occurred in the person of a petty

* Deputy Inspector General W. T. Domville, M.D.
† Surgeon Thomas M'Carthy.

petty officer of the Hibernia, and the following abridged report of it is by the staff-surgeon* of the vessel:

" . . . . . He stated that his health had been pretty good until shortly before he presented himself as a patient in the beginning of March, when he became troubled with cough, and his breathing was occasionally embarrassed. He had been working regularly for many months as a smith in the dockyard, and attributed his illness to cold caught after exposure on leaving the smiths' shop. With the bronchitic attack there were other complications. There was dulness under the left clavicle, and though other parts of the left lung were clear on percussion, the respiratory murmur throughout that side was always indistinct and sometimes inaudible. Slight aphonia existed, and after some days viscid mucus streaked with blood was expectorated without much effort. In the intra-scapular region a peculiar thrill could be heard, and there was also bronchophony. With rest, and treatment directed to the bronchial inflammation, he improved in health very much, had nearly lost his cough, but occasionally spat up a little viscid mucus, slightly tinged with blood. On the evening of the 11th of April, a few minutes after he had been seen at the usual visit by the assistant-surgeon, and when he was standing on the main-deck, talking to some of his messmates, his mouth filled with blood. He spat it out, when blood flowed continuously with great rapidity from his mouth, about four pints flowing within two minutes, before which time life was extinct.

" *Sectio Cadaveris* eighteen hours after death.—Body well nourished; rigor mortis marked; blood has flowed since death from mouth and nose.

" *Thorax.*—The lungs were tolerably healthy, and not collapsed. Some pleuritic adhesions existed on the right side, and the right lung was more gorged with blood than the left. A large tuberculous mass existed at the apex of the left lung, and there were thinly-scattered tubercles in the right lung. The heart presented no abnormal appearance; its cavities were empty. On dissecting up the aorta, in order to remove it with the trachea and bronchi, an opening was made into a cavity over the fifth dorsal vertebra. The boundaries of this cavity were the body of the vertebra, which was denuded and softened, the arch of the aorta, and the right bronchus just as it separates from the trachea. Two large pouches existed in the arch of the aorta, one anteriorly and one posteriorly. The walls of these pouches were much attenuated, and a crucial rent was found in the thinnest part of the posterior pouch, near an opening in the right bronchus. This opening was in the wall of the bronchus forming a boundary of the aneurismal sac. It was an irregular square opening, measuring nearly half-an-inch square. The lining membrane of the bronchus was much reddened, and softened near the opening, and the adjoining portions of the bronchus presented the appearance of inflammatory action. The aneurismal sac

* Staff Surgeon T. R. Pickthorn.

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sac when distended with blood may have been nearly three inches in diameter. The rest of the aorta, traced down to the iliacs, was free from disease. There was no blood in the pleural cavities.

Abdomen.—The stomach and duodenum were distended with coagulated blood, but the abdominal viscera were uniformly healthy."

Diseases of the Alimentary Canal.—There was a considerable reduction in the various ratios coming under this head, compared with the preceding year. Diarrhœa was much less prevalent, and although cholera still committed ravages in many of the Mediterranean ports, fortunately only four cases occurred in the squadron; of these, one proved fatal. There were also two deaths from dysentery.

Diarrhœa, Dysentery, and Cholera.—There were forty-eight cases of diarrhœa in the Arethusa, generally speaking of a mild description, and easily checked. With reference to them the surgeon says:—

"These attacks were most frequent during the fruit season, and after the men had been on shore on leave. Besides many trivial cases which did not require to be admitted to the sick-list, forty-eight were placed under treatment, and of these twenty-six occurred while the ship was at anchor off the Piræus. There were many existing causes, and it is impossible to ascribe the attacks to one alone. In many instances the water was said to be the exciting cause. The water procured at the Piræus is far from good, is distinctly saline to the taste and brackish, and there is no doubt but that during the summer months, when the ground is dry, and there is long absence of rain, the sea-water percolates through the soil, and gives the peculiar saline taste. Under these circumstances I recommended the propriety of distilling the water on board during the hot season, which was done, and after discontinuing the use of the shore water the number of cases diminished. There is another source, however, arising from the men, while heated, and very often before turning into their hammocks, taking a copious draught of water; another prolific source was occasionod by the men, while perspiring at every pore, rushing up from the lower deck, and standing in the draught of an open port to cool themselves, by which the perspiration was suddenly checked, the body got chilled, and diarrhœa and sometimes catarrh was the frequent consequence. Unripe fruit was in some instances clearly the cause of diarrhœa. The treatment adopted when the tongue was comparatively clean, and there was an absence of headache, was to administer a draught composed of dilute sulphuric acid, tincture of opium, tincture of cinnamon, and water, and to repeat it every two hours if the diarrhœa was persistent. Generally, however, two draughts were found sufficient to check the discharge. When the tongue was coated with a white fur, and there was pain in the bowels, nausea, and vertigo, with bilious evacuations, a powder was given composed of grey

grey powder, carbonate of soda, ginger, and confection of opium powder, which usually checked the purging and relieved the nausea, after which the acid draught, as above, was given. In a few cases a dose of castor oil was found necessary."

There were forty-two cases of diarrhœa in the Assurance. The surgeon considers that they were due to the same malarious influences as occasioned cases of fever that occurred at the same time;

"... for in many instances they were accompanied by heat of skin, headache, pain in the back, general lassitude, acceleration of pulse, coated tongue, offensive breath, and a feeling of great discomfort; and that which showed the tendency still more was the fact that these unpleasant symptoms came and went periodically. The treatment employed in these cases was also very similar to that used in the cases of fever, but of course proportioned to the nature of the case. In many of them quinine was found to be essential in effecting a cure."

Four cases of dysentery and six of diarrhœa were entered on the sick-list of the Cockatrice, but many more cases of the latter form of disease seem to have been under treatment which do not appear in the returns. Most of the disease was contracted at Galatz, in the Danube, where cholera was very prevalent during some portion of the year. In the month of June the medical officer* writes:—

"During the last day or two several applicants have presented themselves complaining of colic with diarrhœa. Nearly all of them attribute their complaint to bad water. Filters were procured, and thereafter no water was allowed to be drunk unless previously filtered. Even after this precaution was taken, cases of diarrhœa continued to present themselves. .... In my opinion the disease owed its origin to the great and sudden changes of temperature, as was evidenced by their appearance coinciding with a change in the thermometer."

In the Cossack there were forty-one cases of diarrhœa, the majority of which occurred during the latter half of the year, when the vessel was stationed on the Coast of Syria. They do not appear to have been of much importance. Their average duration was five days.

There were fifty-six cases of diarrhœa, and one of dysentery which proved fatal, in the Gibraltar. Diarrhœa was chiefly prevalent

* Assistant Surgeon A. J. Bolton, M.B.

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prevalent in the month of June, but several cases also occurred in the month of November, when the ship arrived at Malta after the summer cruise. The cases which occurred in November were more severe than those of the earlier part of the year. In several instances they took on a dysenteric character, and it was one of these, occurring in the person of a young seaman, which took on an acute form, and proved fatal in Malta Hospital.

In the Prince Consort there were thirty-eight cases of diarrhœa. They are stated to have occurred for the most part contemporaneously with febrile disorders. In one case sent to hospital the disease assumed a dysenteric character, and was a serious sequela of the acute disease contracted some years previously in China. The majority of the cases were readily amenable to treatment. In many instances the attack was referable to nocturnal exposure after the heat of the day.

There were three cases of dysentery and fourteen of diarrhœa in the Psyche, but they do not appear to have been of much importance.

In the Resistance there were three cases of cholera and seventy-one of diarrhœa. Fifty of the cases of diarrhœa and all the cases of cholera occurred during the Michaelmas quarter of the year, when the vessel was at Naples, where cholera was epidemic. With reference to these cases the the surgeon* says:—

"On the night of the 14th and 15th of August, a sudden fall took place in the temperature, from 84° to 68°, with heavy rain. This appears to have washed all the refuse matter from the higher parts of the city down into the lower, where it became stagnant, there not being a sufficiency of rain to carry it into the sea. These low-lying localities, such as the Chiaia, became afterwards the most fatally affected when the epidemic of cholera had fairly set in. On the morning of the 15th, cholera made its first appearance in a most healthy locality, Capo di Monté, in an orphan school. On the right-hand side of the road was an asylum for boys, and on the left one for girls. It was in the latter that it broke out and spread with fearful rapidly, and in three days had carried off twenty-six out of forty-two cases. The boys escaped entirely. The sudden outburst of this terrible disease is to be attributed to the fact that the water supplied to the girls was impregnated with putrid animal matter, it having been discovered that human bodies had been interred in the vicinity of the well, and the poison had thus percolated through into the otherwise pure water. From this date it gradually

* Surgeon Robert Charles Scott.

gradually spread through the city. On the 21st, 23rd, and 28th, three cases occurred respectively on board here, in the persons of two seamen and a petty officer (a very corpulent man). In all, the symptoms were pretty nearly alike, the attacks being preceded by diarrhœa of a few hours' duration before they applied, and the symptoms afterwards being frequent vomiting, and purging of the characteristic rice-water nature, cramps in the extremities, coldness and blueness of the body, aphonia, urgent thirst, absence of pulse at the wrist, sunken eyes with a dark rim round them, and a pinched nose. As the diarrhœa had lasted some four or five hours in each case, with frequent vomiting, I did not consider I was justified in giving purgatives; for if there is any truth in purging eliminating the poison, they ought to have got better the longer they were purged, but the contrary was the case. I therefore determined on trying the effect of a disinfectant in combination with astringents. For this purpose I administered eight drops of the solution of chloride of zinc with tincture of catechu and cardamoms every hour, and also gave the patients iced brandy-and-water whenever they asked for drink, which was very frequently, the thirst being a very distressing symptom. If the dose was rejected, it was repeated immediately. In the first two cases it acted marvellously; warmth returned to the surface of the body, the voice was restored by degrees, the purging and vomiting gradually ceased, the pulse could be felt distinctly at the wrist, and soon increased in volume; the cramps were slight, and not much complained of; in fact, within eight hours of commencing the disinfectant, I considered the patients free from present danger. To alleviate the cramps, a chloroform liniment was rubbed into the extremities. In the third case, where the vomiting and purging did not subside so readily, I ordered twelve drops of the solution of the chloride of zinc as an enema, with barley water, and it had the desired effect. After the first three doses of the mixture I found it too strong, causing a burning sensation in the throat, and I reduced it to five drops every hour. No opium whatever was given. The patients' convalescence was not retarded by a single untoward symptom; they were much reduced in strength, but good nourishing diet soon brought them round. The quantity of food given was moderate, great care being taken that the digestion was not impaired by too large an ingestion of food. In all these cases the patients were attacked in the very early morning. As the temperature of their bodies was then lowered, might they not have had a predisposition to be influenced by the poisoned atmosphere? I firmly believe that if the diarrhœa had not been checked, the patients would have succumbed to the disease, for when I first saw them they were gradually sinking into the stage of collapse, and by the administration of the chloride of zinc the poison was decomposed, and as the reaction was very rapid, so, doubtless, the more rapid was the purification of the blood, which manifested itself by the return of the pulse to the wrist, and by the warmth of the body being gradually restored. The iced brandy-and-water was also doubtless of great service. On shore the mortality was 68 per cent., and at one hospital which I visited the treatment adopted appeared to be merely mild astringents and

 opiates,

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opiates, and if that did not succeed, the patients were left alone. Before the appearance of cholera we had no cases of diarrhœa. With the former also came the latter disease. It is therefore evident that the condition of the atmosphere which favoured the spread of cholera also promoted the increase of diarrhœa. Three-fourths of the ship's company were attacked with it, several of them presenting the symptoms of cholerine, viz., frequent purging, for the most part without straining or pain, the stools generally being of a pale staw colour and very liquid; in some there was vomiting and feeble pulse, with great prostation of body and mind. The average duration of this disease was twelve days. The only medicine I found of any value in checking the great drain by the bowels was acetate of lead and opium; other astringents were tried, but without any success. Iced brandy-and-water was also given when the pulse indicated stimulants.

"When the cholera first made its appearance on board, the most stringent measures were adopted to prevent its spreading. The patients attacked with the disease were completely isolated from the sick suffering from other diseases, and from the rest of the ship's company. The cholera patients were kept in the sick-bay, and no one was allowed to enter there but those in immediate attendance. This place is a separate compartment of itself, contains 4,888 cubic feet of space, is well ventilated by four large scuttles and by a large metal tube, which can either be used as an up or a down-take. The air of the sick-bay was also purified by the vapour of chlorine, which was kept constantly evolved by a mixture of powdered chlorate of potass and hydrochloric acid. Chloride of lime was kept in the night chair, so that the choleraic evacuations were disinfected as soon as passed. To produce a thorough draught through the ship she was swung broadside to the wind, and, the ship being fitted within the armour plating with a large ventilator worked by steam, this was kept constantly going, so that any impurities which might collect below were speedily got rid of, and all foul air immediately removed. The heads were well washed out thrice daily with chloride of zinc, and thus kept free from smell, and pure. Distilled water only was allowed to be used for drinking purposes, and lime-juice was issued daily to the ship's company for a fortnight, and with good results. The bedding and clothes belonging to those attacked with cholera were soaked for forty-eight hours in a solution of chloride of zinc and water before they were washed, and thus all danger of infection removed. After the appearance of the second case I suggested that the ship should leave the anchorage at St. Lucia, and cruise in the Bay of Naples, as the localities of St. Lucia and the Chiaia were particularly unhealthy. This was at once complied with, and we left on the 25th of August and did not anchor there again, but cruised in the Bay, anchoring, when we were obliged to, at Castella Mare, which as yet had been free from cholera. After leaving Naples the third case of cholera broke out, and happily proved to be the last. I believe that this outbreak of cholera on board was successfully cut short by the sanitary measures adopted. On shore at Naples it increased rapidly, and when we left the Bay on the 18th of September the mortality

was

was very high, which is not to be wondered at, considering the foul state of the city and its environs."

There were eight cases of diarrhœa, and one of cholera which proved fatal, in the Tyrian. As the fatal case occurred in the person of the medical officer of the vessel, the only one on board, the history of the case is necessarily somewhat defective. It is, however, to the following effect, and is given by his successor,* who did not join for some time after his death, and consequently is from hearsay only:—

"In July cholera made its appearance at Galatz, increasing in severity as the month passed on, from ten to fifteen deaths being daily reported in the town. The crew remained perfectly healthy until the middle of the month, were allowed to land when duty permitted, and to bathe. On the 22nd of July the Tyrian left, under orders for Malta, on the day of departure receiving two prisoners, one sick, from the Cockatrice, for a passage. The sick man, a seaman, was sent on board as a case of colic. An impression appears to have existed on board the Tyrian that this was a case of cholera, and in my nosological return for the quarter ending the 30th of September, I stated that 'this would appear to have been a case of cholera.' I have since seen the assistant surgeon of the Cockatrice, and he informs me that it was undoubtedly colic. He would appear, however, to have suffered much from vomiting and purging on board the Tyrian, and to have been much exhausted. He was placed in a cot on the upper deck. The temperature rose during this month from 75° in the first week to 78° and 80° in the second; 84°, 86°, and 90° in the third; and then falling again to 76° and 80°, the barometer being high and the weather fine. On her way down the Danube, the Tyrian touched at Toultcha, but only stewards landed, and on the 23rd at Sulina, where cases of cholera were reported. On the 24th she cleared the river, proceeding to Constantinople. Barometer, 29.90; thermometer 74° to 77° Fahr. During the afternoon of this day the assistant surgeon is reported to have complained of indisposition, but by the evening had recovered. At 5 a. m. on the 25th, having passed a restless night, he wae seized with diarrhœa and vomiting, went on deck, and then turned in. About 6.30 he asked for assistance, feeling that he was fast losing strength, the purging continuing; at 7 a. m. he was seized with cramps in the legs. These were relieved by friction, and he was then able to walk about. At 7.45 he would appear to have perfectly recognised his state, as he informed the commanding officer that he had cholera, and gave some directions, feeling sensible that he was dying. About 8 a. m. he was taken on deck, being then in a state of great exhaustion, the cramps returning, with blueness of the nails, &c. At 12, noon, he was taken below to his cabin, and at 12. 40 he died."

On

* Assistant Surgeon H. C. Woods, M.D.

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On the 27th of July the Tyrian arrived at Karabyaje Fort, and was placed in quarantine. Several cases of diarrhœa and one of fever were landed and placed in tents on shore, and the ship was fumigated throughout. None of the cases landed were apparently severe, as they all shortly returned to duty.

There can be little doubt that the prisoner, referred to above as having been sent on board the Tyrian from the Cockatrice, laboured under symptoms of a very suspicious character. The report sent on board with him was to the effect that, having for two days previously suffered from diarrhœa, which had that morning ceased, he was found sitting on deck—

"In a state of almost extreme collapse. The pulse almost gone, the features collapsed, the skin covered with a cold clammy perspiration, and the extremities cold. He was soon attacked with violent spasms of the muscles of the abdomen and extremities, the recti being drawn into knots."

In all the towns on the Danube, cholera appears to have been extensively prevalent.

The medical officer of the Cockatrice states that at Ibraila on one day there were 240 fatal cases of cholera, the population of the town being 30,000. He also furnishes the following Table, showing the daily number of cases and deaths at Galatz from cholera, from the date of its first appearance in July until its subsidence at the end of August. The population of the town of Galatz is estimated at 90,000.

JULY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Totals.
Number of Cases	0	0	0	0	2	6	9	7	4	12	19	17	22	16	19	31	25	36	34	22	40	43	22	62	44	32	39	30	21	22	17	653
„ Deaths	0	0	0	0	0	4	2	1	0	15	7	11	9	11	15	22	18	17	13	19	22	21	25	30	24	22	24	23	13	11	9	388

AUGUST	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Number of Cases	20	8	9	14	8	7	6	10	9	5	7	6	5	8	1	3	0	5	1	1	2	0	4	2	7	0	0	3	0	0	0	151
„ Deaths	10	6	6	7	8	2	4	4	4	6	6	3	6	5	0	0	0	3	2	2	2	0	5	1	4	0	0	1	0	0	0	99

In remarking on the Table for the month of July, he states:

"The above Table I obtained from the chief magistrate of Galatz, to whom official daily reports were made by the different district medical men of Galatz. The disease infested principally the dirty and ill-conditioned portions of the town, inhabited chiefly by poor

poor Jews, who attend little to the sanitary state of their dwellings. There is nothing peculiar to remark in the symptoms of this epidemic, beyond any other of Asiatic cholera. The following were some of the forms of treatment that were adopted:—In the preliminary stage, some gave what they call Dr. Hamlin's specific, namely, equal parts of tincture of opium, spirits of camphor, and compound tincture of rhubarb, of which twenty minims were given for the first dose, and increased five drops after each liquid stool. Others gave chloric ether with tincture of opium; others, acetate of lead with opium; others camphorated spirit with tincture of opium and essence of ginger. Topically, they relied mostly on friction with camphorated spirit, and the application of sinapisms to the stomach and along the course of the principal bloodvessels."

With reference to the Table for the month of August, he says:

"The above return shows the gradual disappearance of the cholera epidemic. It was apprehended that the disease would be rather increased this month, as soon as the fruit had made its appearance. It has not, however, been so, although the town is filled with fruit, of which the principal now in season are grapes, melons, plums, apples, pears, peaches, quince, and blackberries. Walnuts and cucumbers, as well as all kinds of vegetables, are also in great abundance, and very cheap. During the latter part of the month, in consequence of the abatement of the cholera, leave was granted from 6 p.m. till 9.30 p.m. daily. The sick-list has been rather high, but the cases have been trivial. Diarrhœa has been very frequent, but not so severe as to render the patients incapable of duty."

In the month of September, cholera not having re-appeared, a clean bill of health was granted to all vessels leaving Galatz.

At Malta great apprehensions were entertained that that island would be again visited by an epidemic of cholera as in the previous year, and very stringent measures appear to have been successfully adopted to cut off all communication with infected ports. The Staff Surgeon of the Hibernia says:

"As the year advanced, and cholera made its appearance in many places of the Mediterranean coasts, much alarm was felt in the island of Malta, where the ravages of that destructive disease had been severely felt in the summer and autumn of 1865. The island authorities—very much, I believe, in deference to the universal feeling throughout the island, and guided probably by the experience of last year—ordered and rigidly enforced a most thorough system of quarantine on all vessels and persons coming from suspected ports. Whatever objections may be made on other grounds to so rigid a quarantine, I think it must be admitted that Malta owed to this precaution its freedom from cholera in 1866."

There were ninety-three cases of diarrhœa in the Victoria. They were all of a simple, tractable nature. In one instance, however,

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however, where great debility, and a cachectic tendency followed, the man was brought forward for survey and invalided.

Diseases of the Genito-Urinary Organs.—There was a decrease in the ratio of cases coming under this head, compared with the preceeding year, equal to 6·3 per 1,000. The decrease in the ratio of cases of primary and secondary syphilis, however, is only 1·1.

The vessels that appear to have suffered most from venereal diseases were the Arethusa, Gibraltar, Prince Consort, and Victoria.

There were fourteen cases of primary syphilis, thirteen of secondary syphilis, and six of gonorrhœa in the Arethusa, with reference to which the surgeon says:—

"Notwithstanding the constant opportunities the men had of going on shore at the different ports, only fourteen cases of primary syphilis were placed on the sick-list. Six contracted the disease at the Piræus, and there were six cases of gonorrhœa at the same port. At the Piræus there is a certain surveillance kept over the prostitutes by the police, but I believe the same salutary supervision does not extend to Athens, in consequence of which there is comparatively little benefit derived from the supervision at the Piræus, as a great many of the men proceed to Athens to spend their leave, and also according to the number of ships in the harbour, so is the supply of these unfortunates kept up from Athens. Only one case was at all severe, and probably rendered so by the patient concealing the disease for some days. The cases of gonorrhœa, on the other hand, were very severe, and more especially towards the end of the year. The number of cases of a secondary nature appears somewhat large, but many of them were re-admissions from a recurrence of the disease, where the patients' constitutions were thoroughly saturated, and although amenable to treatment for the time, and the disease would entirely disappear, the eruption would re-appear, showing how difficult it is to eradicate the disease from the system."

In the Gibraltar there were thirty-seven cases of primary syphilis, twelve of secondary syphilis, and ten of gonorrhœa, the great majority of which were contracted at the Piræus, where it is said there were in the month of March over 3,000 men-of-war's men of different nations, and where the number of prostitutes was stated by the surgeon of the police to be at the outside only thirty. Notwithstanding that the ship's company of the Gibraltar had general leave both at Syracuse and Port Mahon, not a single case of venereal disease appears to have been contracted at either place.

"During the Michaelmas and Christmas quarters of the year,

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year, when the Prince Consort was on the Mediterranean Station, seventeen cases of primary syphilis, nine of secondary syphilis, and ten of gonorrhœa were entered on her sick-list. The remarks of the surgeon of the vessel, on this class of diseases, apply to the whole year; but as they have a general application, and are interesting as showing the comparative immunity, or otherwise, enjoyed by ships' companies in proportion as they are stationed at protected or unprotected ports, it has been thought advisable to give them here:—

"In naval and military statistics, this (diseases of the genito-urinary organs) forms, usually, a most serious group of diseases, and of a highly disheartening character to the surgeon as well as to the moralist, for the complaint is often baffling and Proteiform, the issue uncertain and frequently disastrous, the treatment mostly empirical and the cure deferred and doubtful. The returns of the past year present no exception to this rule. Compared with last year, there is a slight decrease in the total number of venereal cases. This is observed principally of syphilis, for there is an increase in gonorrhœal disease, which has lead to an increase in the total loss of service on board. In the Lady quarter, when the ship was principally stationed on the west coast of Ireland, the ship's company, however, having abundance of leave, there were five cases of syphilis and seven of gonorrhœa. In the Midsummer quarter, when the ship was at Plymouth forty-four days, and otherwise stationed as above, with leave as before, twelve cases of syphilis and twenty-five of gonorrhœa. In the Michaelmas quarter, at Plymouth, thirty-six days; making the passage to the Mediterranean, cruising in the same, and anchored at Malta and other places, fourteen cases of syphilis and six of gonorrhœa. In the Christmas quarter, cruising and at Malta, three cases of syphilis and four of gonorrhœa. The syphilitic topography is here intelligible enough, and indicates the large field there is for reformation in the western sea-port, in many respects the fairest in Great Britain. I must, however, state my conviction that the type of the syphilitic disease lately encountered at Plymouth was sensibly milder than in past years, and that gonorrhœal complaints had very considerably superseded the other and severer forms. This favourable change I am inclined to ascribe to the operation of the Contagious Diseases Act, which was then partially carried out at that place, and I look on it as a fair earnest of the great good that may be hereafter effected by the more complete and perfect working of the same. Nineteen cases of secondary or constitutional syphilis are returned, of which five were sent to hospital. In these latter cases the blood poison declared itself especially in the skin in two cases; in another case in the skin and fibrous tissues; in another at the junction of the dermal and mucous membranes at the anal outlet, and in another the tonsils and throat were the parts attacked. The cases treated on board presented much the same pathological signs, but in a less severe present form, and accompanied with less general cachexia. Biniodide of mercury has been frequently exhibited, and I believe it to be

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be an efficient and useful remedy, but sufficiently powerful to require some little care in its use, and a pause at the first appearance of strong constitutional impression, which has seemed to be more frequently of the nature of ptyalism than of the specific effects of iodine.

"It is scarcely possible, I think, to over-estimate the disastrous toxæmic effects of this poison. Beyond the recognized and obvious forms of constutional syphilis, there is little doubt that it very largely imparts a specific taint and character of its own on the various normal and abnormal actions and functions of the body, impairing the former and aggravating the latter. Although I should not be prepared to regard syphilitic virus as the absolute operative agent in the production of various acute and local diseases, as phlegmasiæ, &c., or to acknowledge its transmutation, yet I as much consider that it impedes and hinders the beneficial '*vis medicatrix naturæ*,' defeats the action of remedies, and renders cures protracted and imperfect. Very particularly it complicates and confuses the course and incidents of disease, throws a perturbing influence into the calculations of the practitioner, obscures diagnosis, and confounds treatment. I venture to surmise whether the general intolerance of antiphlogistic remedies, now so remarkably experienced, perhaps regretted, in the treatment of disease, may not be partly due to the wide-spread leaven of acquired or hereditary constitutional syphilis so rife in the community of nations. On this point, the modifications of intercurrent disease by syphilitic poison, the light is only now dawning, but it is, I conceive, possible that it may yet illumine some dark places in pathology. Most of these considerations are but too trite, and too oft told, but their weight is ever recurring and ever woful, and this must be my excuse for making them. The primary diseases have been much of the character commonly observed in past years. The so-called 'Hunterian' chancre, with its cup of induration and clean-cut edges, has been very infrequent, but swelling and thickening sufficiently common, coincident with a suppurating sore. To determine a doubtful case, inoculation was practised on the thigh of the patient, but without result."

There were sixteen cases of primary syphilis, four of secondary syphilis, and eleven of gonorrhœa in the Victoria. The majority of the primary syphilitic cases were simple forms of ulceration without any tendency to induration. The surgeon says:

"A few were undoubtedly contracted at Malta, but the aversion seamen have to acknowledge the source of their disease, induced most of our sufferers to plead perfect ignorance of the localities visited, some declaring they must have contracted it when in a state of stupid intoxication, whilst not a few declared they entered so many houses during a day or two's leave that they had lost all recollection of the places. Two of our sharpest cases were marines just arrived from England, and both stated they left home infected. Being a flag-ship we are constantly receiving on board supernumeraries, recent arrivals from England, who materially tend to

to swell the sick-list, not only with venereal disease, but with many other complaints common to seamen, especially just arriving on a foreign station. No one having had a few years' experience of medical service at Malta can withhold credit from the police authorities for the manner in which they enforce the laws instituted for the purpose of checking the spread of syphilis. But, notwithstanding all their zeal and efforts, disease of the nature referred to does exist, and circulates about to some extent, the principal media being, it is generally supposed, females over whom jurisdiction is a matter of considerable delicacy, unless positive proof of their criminal correspondence be attainable, when the chief of police has it in his power to issue a summons for the woman to appear in the presence of the police surgeon for examination.

"The small proportion of cases of secondary syphilis, viz. four, presents the most satisfactory proof of the benefit of police legislation."

It would appear that venereal diseases are very virulent in Sicily. The surgeon of the Hydra says:

"Syphilis exists in a very bad form in most of the seaport towns of Sicily, whether owing to the filthy habits of the natives, or to the want of proper surveillance, I am at a loss to say. In the solitary case which occurred on board, it seemed as if the ancient virulency of the disease among the Neapolitans retained its malignant character in Sicily. The chancres commenced with a hard indurated pustule without any abrasion of the skin; in a few days a small ash-colored spot appeared, which gradually increased in size (in spite of strong nitric acid being applied) until it was as large as a sixpence. The ulceration then ceased, leaving a deep unhealthy-looking chancre of a pale yellow colour, exuding a thin ichorous discharge. The patient's health suffered a good deal, and there was some constitutional irritability. The disease was contracted in Catania, on the East Coast of Sicily, a large mercantile port, and where there is generally a large garrison, and consequently venereal diseases largely prevail."

Rheumatism.—There was a considerable decrease in the ratio of cases of this disease compared with the preceding year, but the invaliding rate was slightly higher; the death-rate was the same as in 1865. Four hundred and sixteen cases altogether were under treatment, of which forty were invalided and one terminated fatally. The fatal case occurred in the person of a delicate, scrofulous-looking boy of the Pysche, who presented himself on the 9th of March complaining of severe abdominal pain of a colicky character, which had come on after washing clothes on deck; he had been constipated for two days previously. The bowels were moved with castor oil, and his symptoms relieved, but on the following morning he was very feverish, the pulse was 102; his face was flushed, the tongue furred, and he complained of severe frontal headache. The skin was dry and hot, and the urine scanty and high coloured.

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coloured. He complained also of pain in the muscles in the front of the thighs, and in the cardiac region. In the course of the day the wrists, knees, and elbows began to swell, and became tender, while an inflammatory blush spread over them; towards night he became restless, but the pain in the limbs was not so severe. About 10 p.m. he had a severe attack of palpitation, and was delirious part of the night; there was great thirst. On account of the head symptoms opium was withheld, and hyosciamus administered instead, but without inducing narcotic effects. The alkaline plan of treatment was adopted as soon as the disease became pronounced, and as soon as the system became affected by the alkali, the heart symptoms ceased; on the 12th of March he was sent to Malta Hospital. On his admission to hospital it is reported that he complained of cardiac palpitation, but although the heart's action was much increased, the sounds were normal. Below the left nipple, however, and extending through the left lateral region, there was a loud pleuritic friction sound. He passed a very restless night in hospital, and complained of great pain in the right hand and knee, which were much swollen; he was delirious during the night; the pulse was 130, the tongue moist, and the skin hot and dry. He lay insensible during the whole of the 13th, and expired about 11 p.m. of that day.

The following is the report of the autopsy made twenty-four hours after death:

"On opening the thorax, recent pleuritic adhesions were observed on both sides of the chest; the left lung was considerably congested, but the right appeared in its normal condition. The heart and pericardium were perfectly healthy."

Death seems to have resulted from rheumatic meningitis, which would probably have been made apparent had the head been examined.

Diseases not classed.—Under this heading are entered sixty-five cases of "worms," of which one was invalided. The invalided case was one of Guinea worm occurring in the person of a seaman of the Cossack; portions of the worm were removed from the man's leg in Malta Hospital, but his health became so much impaired that it was thought advisable to send him to England.

From the fact that men suffering from tape-worm are rarely unfitted for duty, and consequently do not appear on the sick-list, the great prevalence of this parasite amongst the seamen and marines of the Mediterranean Squadron has probably never been fully ascertained; that it does prevail

to

to a great extent is unquestionable. The surgeon of the Victoria says:—

"For the period of this journal, a record of forty-seven cases of tapeworm has been kept, but several others, I have reason to believe, have purchased medicine on shore, so that the above figures show only a proportion of the affected. Moreover, I am pretty certain that on board are many individuals whose intestines are the abode of this parasite, but who from indolence, disinclination, or from the fact of experiencing no inconvenience beyond the periodical expulsion of fragments, never think of applying for a remedy. To this conclusion I am drawn, by noticing that when a case does occur where the patient receives a dose of the male fern, so satisfied is he with seeing such quantities expelled, that he informs his friends, and generally one or two messmates present themselves for a dose similar to what their friend had, as they have also noticed joints passing often for months previous to their application.

"During the early part of the commission the applicants were few in number, but latterly, and especially since this journal was closed, a considerable increase of cases has occurred; indeed, the ratio of increase, with the duration of the ship on the station, is very marked. The remarkable feature in the occurrence of this parasitical affection, is the wonderful exemption amongst the officers; indeed, I have not, since the commissioning of the Victoria, had occasion to prescribe for an officer affected with tænia. On inquiry, I find the disease exists amongst the Maltese, though to a somewhat limited extent only, and very rarely affecting the better classes. Amongst our soldiers in the garrison it is prevalent, especially such regiments as continue any length of time in the island; the Engineers and Artillery, for example.

"The source of the ova must necessarily be involved in considerable obscurity, as on careful inquiry into the food and mode of cooking employed for officers and men, no such difference exists as could account for the frequency of the parasite in the one more than in the other. The idea that eating raw pork is a frequent source of the mischief, fails in the present case to account for the frequency of the disease, as we have failed to trace the possibility of such a habit, owing to the system of cooking organised on board here. Moreover, I have positive proof of the occurrence of the parasite in many who never eat pork in any form, having an antipathy to such food. It is also worth remarking that the officers' messes are much more freely supplied with fresh pork than those of the men. Of course men and officers use the same quality of water, but the active exertion required of the seamen induces a very much larger consumption of that beverage than is customary for the latter to consume, whereas the officer has the opportunity of quenching thirst with beer and other fluids, so that, if water proves a channel of introduction, the risks are proportionately less. My own belief is, that the more cleanly habits of the officer will aid us in explaining why the seamen and marines become more subject to the introduction and fertilization of the ova of the tænia than does his officer. The latter rarely indulges in vegetables or fruit without having them properly cleaned, whereas the supplies from the bumboats are frequently anything but clean.

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"Of the remedies administered on board, none have proved so efficient as the liquid extract of the male fern. Kousso and turpentine have both been given, but with very imperfect results, whereas in no case has the male fern failed to expel masses of the worm, and to remove all traces of it for varying periods. Rarely indeed has the evidence of a fragment been noticed before an interval of three or four months. In nearly all our cases, however, medicine had to be repeated, but whether this was in consequence of the expulsion being incomplete, or what seems equally feasible, that the patient continuing under precisely similar conditions to that before getting rid of his parasite, became again a nidus for fresh ova. Our usual mode of treatment was first to clear out the primæ viæ by a brisk purge, then fasting for several hours, after which, a drachm of the extract, in mucilage and cinnamon water, was given, and twelve hours afterwards a dose of castor oil. In two nights afterwards the fasting and extract, with the morning dose of oil, were repeated, but very rarely indeed was anything brought away by the second dose, so thoroughly and unfailingly did the first take effect."

One of the medical officers * of the Royal Oak, in which ship there were fifty cases of tænia, who gave particular attention to this subject, and carefully tabulated the cases, says :—

"The Royal Oak having for the last three years been almost constantly at Malta, with the exception of a cruise, in 1866, to Spain and Italy, there appears to be strong presumptive evidence that the parasite originates in Malta, and this appears to be strengthened by the fact that there are very numerous cases of tænia among the troops."

The surgeon says :—

"Fifty cases of tænia solium appear in this return, a disease which has not hitherto figured in the Nosological Tables, although it has been very frequent ever since the ship entered the Mediterranean. These fifty cases are for only nine months of the year, it not having been thought necessary, previously, to enter them on the sick-list, from their not requiring to be relieved from duty. They are now registered on the daily sick-list, in order to show their numbers on the nosological return. If it is well established that tænia arises from eating pork, then there is probably sufficient cause on this station, in the quantity of fresh pork consumed by the men, and chiefly at Malta, a subject deserving, and here probably capable of, a more minute and definite inquiry. The extract of male fern is the remedy found most efficient. In comparatively few cases has it been found that the disease returned."

The surgeon † of the Cossack, speaking of the coast of Syria, says :—

"After leaving the coast, several cases of tænia came under observation. The extract of male fern was effectual in expelling large portions, but whether the whole worm was expelled, it was not possible to ascertain, as the men went to the head. I noticed the measly

* Assistant-Surgeon H. C. Woods, M.D. † Surgeon C. E. Playfair.

measly appearance, frequently, in both beef and mutton procured in Syria."

Considering the distressing symptoms, both mental and bodily, not unfrequently occasioned by the presence of this parasite, its extensive prevalence in a squadron is a matter of considerable importance, and it is very desirable that medical officers should direct their attention to the various sources from which the animal may be derived, in order, if possible, to prevent its introduction on board ship. The men themselves should also, on stations where it is known to abound, be informed of the risk they run in eating raw or under-done pork, or even beef and mutton, as well as the care which should be taken in attending to the cleanliness of all vegetables intended to be eaten raw, such as salads.

Wounds and Injuries.—One man sustained fatal fracture of the skull by falling from aloft; one by falling from the lower to the orlop deck; one by falling from his hammock; and one by a top-gallantmast coming down from aloft upon him. A man was killed by injuries sustained by falling from his horse, but what the nature of the injuries was, is not stated; and a man sustained fatal fracture of the skull by a blow on the head, inflicted by a shipmate.

One man was knocked overboard from aloft, and drowned. The total number of deaths was thirty, which is in the ratio of 5·4 per 1,000 of mean force, being 2·8 below the death-rate of the preceding year. The death-rate from disease alone was only 4· per 1,000.

Invalided.—Eleven persons were invalided for the sequelæ of fever; twenty-three for diseases of the brain and nervous system, thirteen of whom were epileptic; fifty-four for diseases of the respiratory organs, forty-five of whom were phthisical; sixteen for diseases of the heart and blood-vessels; two for diseases of the alimentary canal; five for diseases of the liver; one for disease of the spleen; eighteen for diseases of the genito-urinary organs, almost all of venereal origin; forty for rheumatism; one for gout; seven for diseases of the bones and joints; seven for diseases of the special senses; eleven for diseases of the skin and cellular tissue; sixteen for diseases not classed; eleven for the effects of wounds and injuries of various kinds; and seven for hernia; making the total number invalided, 230, which is in the ratio of 41·6 per 1,000 of mean force, being an increase, compared with the previous year, equal to 7·3 per 1,000.

TABLE, No. 1.

SHOWING the Number of Cases of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	216	39·1	10	1·8	4	·7
Intermittent Fever	120	21·7	1	·1	—	—
Small Pox	2	·3	—	—	—	—
Measles	1	·1	—	—	—	—
Disease of the Brain	1	·1	—	—	—	—
Apoplexy	3	·5	-	-	3	·5
Epilepsy	25	4·5	13	2·3	—	—
Paralysis	5	·9	2	·3	—	—
Insanity	8	1·4	8	1·4	—	—
Delirium Tremens	9	1·6	-	-	2	·3
Neuralgia	14	2·5	—	—	—	—
Vertigo	9	1·6	—	—	—	—
Inflammation of the Lungs and Pleura	61	11·	6	1·	—	—
Phthisis and Hæmoptysis	35	6·3	45	8·1	3	·5
Influenza and Catarrh	1,011	183·1	3	·5	—	—
Cynanche	231	41·8	—	—	—	—
Asthma	1	·1	—	—	—	—
Disease of the Heart, Functional and Organic	15	2·7	12	2·1	1	·1
Hæmorrhoids	28	5·	1	·1	—	—
Varix	11	1·9	2	·3	—	—
Aneurism	1	·1	1	·1	1	·1
Disease of the Stomach and Bowels	2	·3	—	—	—	—
Dysentery	11	1·9	1	·1	2	·3
Diarrhœa	498	90·2	1	·1	—	—
Cholera	4	·7	-	-	1	·1
Constipation and Colic	73	13·2	—	—	—	—
Disease of the Liver	9	1·6	5	·9	—	—
Jaundice	21	3·8	—	—	—	—
Splenitis	1	·1	1	·1	—	—

TABLE, No. 1.—SHOWING the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	5	·9	2	·3	—	—
Syphilis, Primary	133	24·	—	—	—	—
Syphilis, Secondary	56	10·1	12	2·1	—	—
Gonorrhœa	82	14·8	—	—	—	—
Orchitis	88	15·9	2	·3	—	—
Stricture	21	3·8	2	·3	—	—
Rheumatism	416	75·3	40	7·2	1	·1
Gout	4	·7	1	·1	—	—
Disease of the Bones and Joints	20	3·6	7	1·2	1	·1
Inflammation of the Eyes	50	9·	4	·7	—	—
Amaurosis and Cataract	3	·5	2	·3	—	—
Otitis and Deafness	28	5·	1	·1	—	—
Erysipelas	13	2·3	—	—	1	·1
Scrofula	2	·3	1	·1	1	·1
Bubo (*Symp.*)	54	9·7	—	—	—	—
Phlegmon and Abscess	1,865	337·8	7	1·2	—	—
Ulcer	436	78·9	1	·1	—	—
Psora	14	2·5	—	—	—	—
Eruptions, &c.	46	8·3	2	·3	—	—
Dyspepsia and Debility	324	58·6	11	1·9	—	—
Dropsy	1	·1	—	—	1	·1
Worms	65	11·7	1	·1	—	—
Headache	26	4·7	4	·7	—	—
Wounds and Injuries	1,566	283·6	11	1·9	6	1·
Burns and Scalds	41	7·4	—	—	1	·1
Hernia	10	1·8	7	1·2	—	—
Drowned	—	—	—	—	1	·1
Poisoning	2	·3	—	—	—	—
TOTAL	7,797	1412·5	230	41·6	30	5·4

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE, and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	3,617	1,704	5,321	14·5	2·6
Intermittent Fever	1,010	114	1,124	3·	·5
Small Pox	10	141	151	·4	—
Measles	10	40	50	·1	—
Disease of the Brain	52	39	91	·2	—
Apoplexy	7	-	7	—	—
Epilepsy	378	76	454	1·2	·2
Paralysis	50	82	132	·3	—
Insanity	120	78	198	·5	—
Delirium Tremens	52	-	52	·1	—
Neuralgia	132	-	132	·3	—
Vertigo	32	73	105	·2	—
Inflammation of the Lungs and Pleura	1,199	760	1,959	5·3	·9
Phthisis and Hæmoptysis	625	587	1,212	3·3	·5
Influenza and Catarrh	6,502	237	6,739	18·4	3·3
Cynanche	2,044	48	2,092	5·7	1·
Asthma	7	-	7	—	—
Disease of the Heart, Functional and Organic	276	127	403	1·1	·1
Hæmorrhoids	321	55	376	1·	·1
Varix	173	-	173	·4	—
Aneurism	19	16	35	—	—
Disease of the Stomach and Bowels	6	33	39	·1	—
Dysentery	117	32	149	·4	—
Diarrhœa	2,553	129	2,682	7·3	1·3
Cholera	41	-	41	·1	—
Constipation and Colic	319	3	322	·8	·1
Disease of the Liver	221	139	360	·9	·1
Jaundice	284	-	284	·7	·1
Splenitis	10	31	41	·1	—

Table, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont*ᵈ.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	135	44	179	·4	—
Syphilis, Primary	3,419	2,011	5,430	14·8	2·6
Syphilis, Secondary	1,542	662	2,204	6·	1·
Gonorrhœa	1,383	136	1,519	4·1	·7
Orchitis	1,642	505	2,147	5·8	1·
Stricture	308	247	555	1·5	·2
Rheumatism	5,505	1,769	7,274	19·9	3·6
Gout	23	—	23	—	—
Disease of the Bones and Joints	434	160	594	1·6	·2
Inflammation of the Eyes	666	88	754	2·	·3
Amaurosis and Cataract	11	26	37	·1	—
Otitis and Deafness	280	15	295	·8	·1
Erysipelas	170	170	340	·9	·1
Scrofula	44	—	44	·1	—
Bubo (*Symp.*)	1,540	476	2,016	5·5	·9
Phlegmon and Abscess	18,213	912	19,125	52·3	9·4
Ulcer	7,931	805	8,736	23·9	4·3
Psora	114	61	175	·4	—
Eruptions, &c.	704	211	915	2·5	·4
Dyspepsia and Debility	2,677	294	2,971	8·1	1·4
Dropsy	2	85	87	·2	—
Worms	95	40	135	·3	—
Headache	134	71	205	·5	—
Wounds and Injuries	18,026	1,615	19,641	53·8	9·7
Burns and Scalds	438	3	441	1·2	·2
Hernia	193	37	230	·6	·1
Poisoning	25	—	25	—	—
TOTAL	85,841	14,987	100,828	276·2	50·

TABLE, No. 3.

SHOWING the Number INVALIDED from each Ship employed on the MEDITERRANEAN Station.

CAUSE of INVALIDING.	Arethusa.	Assurance.	Caledonia.	Caradoc.	Cossack.	Cruiser.	Enterprise.	Gibraltar.	Hibernia.	Hydra.	Pelican.	Phœbe.	Prince Consort.	Racer.	Resistance.	Royal Oak.	Tyrian.	Victoria.	Wizard.	TOTAL.
Continued and Remittent Fever	–	1	–	–	1	–	–	–	–	–	–	–	–	–	–	3	–	5	–	10
Intermittent Fever	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
Insanity	3	–	–	–	–	–	–	1	–	1	–	1	–	–	2	–	–	–	–	8
Epilepsy	1	1	1	–	2	–	–	1	–	–	–	–	2	–	1	1	–	3	–	13
Paralysis	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	2
Inflammation of the Lungs and Pleura	1	–	1	–	1	–	–	2	–	–	–	–	–	–	–	–	–	1	–	6
Phthisis and Hæmoptysis	4	1	4	–	3	–	4	5	–	1	1	1	1	–	4	9	–	7	–	45
Catarrh	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	3
Disease of the Heart, Functional and Organic	1	–	2	–	2	–	1	1	–	–	–	–	1	–	1	–	–	2	1	12
Aneurism	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1
Hæmorrhoids	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Varix	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	2
Dysentery	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
Diarrhœa	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Splenitis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Disease of the Liver	2	–	–	–	1	–	–	–	–	–	–	–	1	–	1	–	–	–	–	5
Inflammation of the Kidneys and Bladder	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	2
Syphilis, Secondary	2	–	–	–	–	–	1	5	–	–	–	–	–	–	1	2	–	1	–	12
Orchitis	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	2
Stricture	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	2
Rheumatism	1	1	–	–	1	3	5	6	–	–	–	–	1	–	4	14	–	4	–	40
Gout	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Diseases of the Bones and Joints	–	–	–	–	1	–	2	–	–	–	–	–	1	–	1	1	–	1	–	7
Inflammation of the Eyes	1	–	–	–	–	–	–	2	–	–	–	–	–	–	–	1	–	–	–	4
Amaurosis and Cataract	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
Otitis and Deafness	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Scrofula	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Abscess	–	–	1	a1	1	–	–	1	–	–	–	–	–	–	1	1	–	1	–	7
Ulcer	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Eruptions, &c.	–	–	–	–	–	–	1	–	–	–	–	1	–	–	–	–	–	–	–	2
Dyspepsia and Debility	–	1	–	–	2	–	–	1	1	–	–	–	–	–	–	2	–	4	–	11
Headache, &c.	–	–	–	–	–	–	–	2	–	–	–	–	2	–	–	–	–	–	–	4
Worms	–	–	–	–	b1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Wounds	–	–	1	–	2	–	1	1	–	–	–	3	–	–	1	–	1	1	–	11
Hernia	–	1	–	–	–	–	1	1	–	–	–	–	–	–	1	1	–	1	–	7
TOTAL	22	6	10	2	20	3	16	30	3	2	1	6	10	1	20	37	1	39	1	230

a Psoas. *b* Dracunculus.

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship employed on the MEDITERRANEAN STATION.

CAUSE of DEATH.	Arethusa.	Assurance.	Caledonia.	Cossack.	Gibraltar.	Hibernia.	Phœbe.	Prince Consort.	Psyche.	Racer.	Resistance.	Royal Oak.	Tyrian.	Victoria.	Wizard.	TOTAL.
Continued and Remittent Fever	–	–	–	–	–	–	–	–	–	–	–	1	–	2	1	4
Apoplexy	–	1	1	–	–	–	–	–	–	–	–	–	–	–	1	3
Delirium Tremens	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	2
Tetanus	–	–	–	–	–	–	–	–	–	–	–	–	–	a1	–	1
Phthisis	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
Disease of the Heart	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1
Aneurism	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
Dysentery	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	2
Cholera	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Rheumatism	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
Diseases of the Bones and Joints	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
Erysipelas	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Dropsy	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1
Scrofula	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Wounds and Injuries	2	–	–	–	1	1	–	–	–	–	1	1	–	–	–	6
Drowned	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
TOTAL	5	1	2	1	3	2	1	1	1	1	1	3	2	4	2	30

a Following a burn.

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Men Sick Daily, in each Ship;

C. Commissioned. P. O. Paid off.

Rate, &c.	NAMES of SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.
Iron Clad	Caledonia - C. S.	Devonport	27 April 1865	30	4,125	S. 1.000
	Enterprise	Woolwich	6 May 1864	4	993	S. 160
	Prince Consort - C. S.	Devonport	14 Jan. 1864	31	4,045	S. 1,000
	Resistance	Sheerness	2 July 1862	16	3,710	S. 600
	Royal Oak	Chatham	27 April 1863	35	4,056	S. 800
First Rate	Victoria	Portsmouth	1 Nov. 1864	102	4,127	S. 1,000
Second Rate	Gibraltar	Devonport	20 Nov. 1862	81	3,729	S. 800
Fourth Rate	Arethusa	Sheerness	8 June 1865	35	3,141	S. 500
	Phœbe - P. Q.	Devonport	23 Sept. 1862	35	2,896	S. 500
Sixth Rate	Cossack	Sheerness	19 May 1863	20	1,296	S. 250
Sloop	Cruiser - C.	Portsmouth	27 July 1866	3	752	S. 60
	Pelican - P. O.	Portsmouth	6 Sept. 1861	17	952	S. 200
	Racer	Woolwich	22 June 1864	11	579	S. 150
Gun Vessel	Assurance	Devonport	11 May 1864	4	681	S. 200
	Surprise - P. O.	Devonport	24 June 1861	4	680	S. 200
Steam Vessel	Caradoc	Woolwich	16 Jan. 1863	2	676	P. 350
	Firefly - P. O.	Woolwich	21 Feb. 1860	5	550	P. 220
	Hydra	Malta	10 Nov. 1863	6	818	P. 220
	Psyche	Woolwich	18 Oct. 1862	2	835	P. 250
Gun Boat	Cockatrice - P. O. & C.	Malta	9 Feb. 1866	2	269	S. 60
	Tyrian	Malta	13 July 1865	2	272	S. 60
	Wizard - C.	Malta	27 Mar. 1866	2	270	S. 60
Receiving Ship	Hibernia	Malta	1 April 1862	–	2,530	–

TABLE, No. 5.

Cases; the Total Number of Days' Sickness on Board; the Average Number of and the Number Discharged to Hospital.

C. S. Station changed.

Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for 12 Months.	Ratio per 1,000 of Average Force of each Ship.	Number discharged to Hospital.
1 Jan. to 31 Mar.	565	140	120	1,602	4·3	30·7	9
Year - -	130	130	234	2,147	5·8	44·6	16
1 July to 31 Dec.	645	320	445	5,138	14·	43·7	59
Year - -	450	460	548	6,579	18·	39·1	11
Year - -	600	600	740	8,186	22·4	37·3	42
Year - -	1,025	1,025	1,496	15,358	42·	40·9	20
Year - -	860	860	1,083	12,197	33·4	38·8	40
Year - -	530	530	933	14,072	38·5	72·6	19
1 Jan. to 29 June	510	255	418	4,321	11·8	46·2	8
Year - -	275	275	470	4,893	13·4	48·7	19
1 Oct. to 31 Dec.	180	45	58	530	1·4	31·1	5
1 Jan. to 7 May	190	65	84	769	2·1	32·3	5
Year - -	135	135	134	1,306	3·5	25·9	3
Year - -	90	90	352	2,120	5·8	64·4	12
1 Jan. to 24 Apr.	95	30	10	70	·1	3·3	2
Year - -	65	65	46	638	1·7	26·1	3
1 Jan. to 7 Feb.	80	10	4	89	·2	20·	—
Year - - -	130	130	186	1,665	4·5	34·6	5
Year - -	65	65	124	837	2·2	33·8	3
Ten months -	45	40	70	779	2·1	52·2	3
Year - -	40	40	48	445	1·2	30·	4
15 July to 31 Dec.	45	20	37	240	·6	30·	2
Year - -	190	190	157	1,682	4·6	24·2	8

TABLE, No. 6.

SHOWING the Number of CASES of all DISEASES and INJURIES

DISEASE OR INJURY.	Arethusa.	Assurance.	Caledonia.	Caradoc.	Cockatrice.	Cossack.	Cruiser.	Enterprise.	Firefly.	Gibraltar.
Continued and Remittent Fever	12	6	–	–	–	3	–	6	2	11
Intermittent Fever	1	57	1	–	6	10	–	–	–	3
Small Pox	–	–	–	–	–	–	–	–	–	1
Measles	1	–	–	–	–	–	–	–	–	–
Disease of the Brain	–	–	–	–	–	–	–	–	–	–
Apoplexy	–	1	1	–	–	–	–	–	–	–
Epilepsy	1	1	1	–	–	2	–	–	–	1
Paralysis	–	–	1	–	–	–	–	–	–	1
Insanity	2	–	–	–	–	–	–	–	–	1
Delirium Tremens	–	–	–	–	1	–	–	–	–	–
Neuralgia	2	–	–	1	–	–	–	–	–	1
Vertigo	–	–	–	–	–	–	–	1	–	3
Inflammation of the Lungs and Pleura	9	1	7	1	1	3	–	1	–	3
Phthisis and Hæmoptysis	1	–	–	–	–	3	2	2	–	2
Catarrh	18	34	42	1	7	75	5	16	1	163
Cynanche	59	2	1	4	1	13	1	7	–	22
Asthma	–	–	–	–	–	–	–	–	–	–
Disease of the Heart, Functional and Organic	2	–	–	–	–	–	–	1	–	–
Aneurism	–	–	–	–	–	–	–	–	–	1
Hæmorrhoids	5	1	–	–	–	–	–	–	–	4
Varix	–	–	–	–	–	–	–	2	–	1
Inflammation of the Stomach and Bowels	–	–	–	–	–	–	–	–	–	–
Cholera	–	–	–	–	–	–	–	–	–	–
Dysentery	–	–	–	–	4	–	–	1	–	1
Diarrhœa	48	42	3	2	6	41	1	6	–	56
Constipation and Colic	1	–	–	–	6	26	1	5	–	4
Inflammation of the Liver	4	–	–	–	–	–	–	–	–	–
Jaundice	–	1	1	–	–	–	–	–	–	2
Splenitis	–	–	–	–	–	–	–	–	–	–
Inflammation of the Bladder and Kidneys	a 1	–	–	–	–	–	–	–	–	–
Syphilis, Primary	14	3	2	1	1	1	–	9	–	37
Do. Secondary	13	–	3	–	2	–	–	2	–	12
Gonorrhœa	6	4	–	–	1	2	2	8	1	10
Orchitis	6	1	–	4	–	2	–	2	–	14
Stricture of the Urethra	4	1	–	1	–	–	–	3	–	5
Rheumatism	45	13	7	–	5	25	10	17	–	66
Gout	3	–	–	–	–	–	–	–	–	1
Disease of the Bones and Joints	–	1	–	–	–	1	–	5	–	–
Inflammation of the Eyes	3	–	2	–	2	4	–	2	–	9
Amaurosis and Cataract	1	–	–	1	–	1	–	–	–	–
Otitis and Deafness	2	1	–	1	–	3	1	3	–	3
Erysipelas	1	–	3	1	5	–	–	–	–	–
Scrofula	–	–	–	–	–	–	–	–	–	1
Bubo (*Symp.*)	4	–	–	1	1	7	2	–	–	10
Phlegmon and Abscess	256	76	15	14	7	95	9	60	–	239
Ulcer	133	13	7	3	4	20	6	9	–	29
Psora	8	–	–	–	–	–	–	–	–	1
Eruptions, &c.	–	1	1	1	–	1	–	1	–	1
Dyspepsia and Debility	40	55	5	1	1	10	3	6	–	73
Headache, &c.	–	1	–	–	–	9	–	–	–	–
Dropsy	–	1	–	–	–	–	–	–	–	–
Worms	–	2	–	–	–	c 2	–	b 3	–	–
Wounds and Injuries	225	31	17	7	9	110	15	54	–	285
Burns and Scalds	2	2	–	1	–	1	–	1	–	5
Hernia	–	–	–	–	–	–	–	1	–	1
Poisoning	–	–	–	–	–	–	–	–	–	–
TOTAL	933	352	120	46	70	470	58	234	4	1,083

a Diabetes. b Tænia. c 1 Dracunculus, 1 Tænia.

Table, No. 6.

in each Ship employed on the Mediterranean Station.

Hibernia.	Hydra.	Pelican.	Phœbe.	Prince Consort.	Psyche.	Racer.	Resistance.	Royal Oak.	Surprise.	Tyrian.	Victoria.	Wizard.	Total.
7	5	1	7	21	-	5	19	46	-	3	61	2	216
1	2	1	13	-	-	3	2	-	-	3	15	2	120
-	1	-	-	-	-	-	-	-	-	-	-	-	2
-	-	-	-	-	-	-	-	1	-	-	-	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	1	3	3	-	-	3	-	-	1	8	-	25
-	-	-	-	1	-	1	-	1	-	-	-	1	5
2	1	-	1	-	-	-	1	-	-	-	-	-	8
2	-	-	1	-	-	1	-	2	-	2	-	-	9
1	-	-	3	1	-	2	2	1	-	-	-	1	14
-	-	-	-	-	-	-	-	4	-	-	-	-	9
3	-	1	3	10	-	-	a 1	12	-	2	2	1	61
2	1	1	1	-	-	-	3	6	-	-	11	-	35
11	46	31	87	28	22	11	54	24	1	-	329	5	1,011
1	4	-	35	27	7	10	11	11	-	2	13	-	231
-	-	-	-	-	-	-	1	1	-	-	-	-	4
1	-	-	-	1	-	1	2	3	-	1	3	-	15
1	-	-	-	-	-	-	1	-	-	-	-	-	1
-	-	-	-	5	-	1	1	5	-	-	5	-	28
-	-	-	-	4	-	-	1	1	-	-	2	-	11
1	-	-	d 1	-	-	-	-	-	-	-	-	-	2
-	-	-	1	-	-	-	3	-	-	1	-	-	4
-	1	-	-	3	-	-	-	-	-	-	-	-	11
8	12	1	16	38	14	11	71	18	-	8	93	3	500
3	1	-	5	-	4	-	8	3	-	1	5	-	73
-	-	-	1	-	1	-	2	-	-	1	-	-	9
1	-	-	-	-	1	-	6	3	-	-	6	-	21
-	-	-	-	-	-	-	-	-	-	-	1	-	1
1	-	1	-	-	-	-	-	2	-	-	-	-	5
4	1	-	5	17	1	4	3	10	-	4	16	-	133
2	1	-	-	9	-	-	2	5	-	-	4	1	56
3	1	1	8	10	-	2	3	9	-	-	11	-	82
1	-	-	6	11	-	-	9	12	-	2	18	-	88
1	-	-	1	2	-	-	-	3	-	-	-	-	21
6	6	2	13	20	7	10	29	63	-	4	66	2	416
-	-	-	1	4	-	-	-	6	-	-	2	-	20
4	3	-	2	3	-	1	-	6	1	-	8	-	50
-	-	-	1	1	-	2	-	2	-	-	7	1	28
-	-	-	-	-	-	-	2	-	-	-	1	-	13
-	-	-	-	-	-	-	-	1	-	-	-	-	2
-	2	-	5	7	1	1	1	5	1	1	5	-	54
44	56	22	93	95	23	32	167	156	2	4	390	10	1,865
9	3	1	23	43	1	2	7	51	4	2	66	-	436
-	-	-	-	3	-	-	-	2	-	-	-	-	14
1	3	2	2	9	-	1	5	9	-	-	10	-	46
7	13	2	7	8	10	4	22	17	-	-	37	3	324
-	-	-	2	1	8	-	-	2	-	-	3	-	26
-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	-	-	b 1	b 1	-	-	b 50	-	6	-	-	65
26	25	14	68	58	20	26	105	179	1	-	287	4	1,566
1	1	1	2	3	-	2	2	6	-	-	10	1	41
2	-	-	1	1	-	1	1	1	-	-	1	-	10
-	-	1	-	-	-	-	-	e 1	-	-	-	-	2
157	186	84	418	445	124	134	548	740	10	48	1,496	37	7,797

d Hæmatemesis. *e* By Fish.

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THE squadron on the North American and West Indian Station in 1866 consisted of twenty-four vessels; viz., one iron-clad vessel; one vessel of the second rate; three, of the fourth-rate; five, of the sixth rate; eight sloops; four gun-vessels; one receiving ship permanently stationed at Port Royal, Jamaica; and one floating battery permanently stationed at Bermuda. Besides these there were seven gun-boats in temporary commission during the year, not carrying medical officers, and four or five hired steamers fitted as gun-boats for service on the lakes, and manned from some of the ships of the squadron. The returns from fifteen of the vessels are for the whole year, and from the remainder for periods varying from six to eleven months. The mean force corrected for time was 5,420, but in estimating the ratio of cases entered on the sick-list the force is taken as 5,240, a deduction of 180 being made for the force employed in those gun-boats in which there were no medical officers, and from which consequently no trustworthy returns of cases could be procured. The total force, however, is taken in estimating the invaliding and death rates. The total number of cases entered on the sick-list was 7,506, which is in the ratio of 1432·4 per 1,000 of mean force, being a decrease, compared with the preceding year, equal to 258·5 per 1,000. Of these 151 were invalided and fifty-five died; the former being in the ratio of 27·8, and the latter of 10·1 per 1,000 of mean force. The invaliding rate is 4·4 and the death-rate 2·4 below those of the preceding year.

The daily loss of service from fevers was equal to about eighteen men, or in the ratio 3·2 per 1,000 of mean force. The daily sick-rate from diseases of the brain and nervous system was ·2; of the respiratory organs, 5·5; of the heart and bloodvessels, ·5; of the alimentary canal, 1·4; of the liver, ·1; of the genito-urinary organs, 7·8; from rheumatism, 3·4; diseases of the bones and joints, ·2; of the special senses,

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senses, ·5; of the skin and cellular tissue, 14·3; from diseases not classed, 1·2; and from wounds and injuries of various kinds, 8·3. The average number of men daily ineffective was 266·9, which is in the ratio of 49·2 per 1,000 of mean force, and a reduction, compared with the preceding year, equal to 5·3 per 1,000.

Fevers.—There were 543 cases of continued and remittent fever, eleven of yellow fever, and 112 of ague under treatment during the year; and of these five of primary fever, and one of ague were invalided; and three of primary fever, and nine of yellow fever, proved fatal. The average duration of each case of primary fever on board ship and in hospital was ten days; of each case of yellow fever seven days; and of each case of ague between ten and eleven days.

Continued and Remittent Fever.—There were seventy-eight cases of primary fever in the Aboukir, the majority of which occurred in the Lady and Christmas quarters of the year. In consequence of the death of one medical officer, and the short time during which several others had temporary medical charge, but little information is furnished in connection with these cases. With the exception of a few classed as ephemeral, they were all of the remittent type.

In the Aurora there were seventeen cases of primary fever, all of which appear to have been of a comparatively trifling character, as no especial notice is taken of them. Eight were classed as continued, and were each on an average between eleven and twelve days under treatment on board; and nine as ephemeral, the average duration of each of these being about four days.

There were six cases of primary fever of an ephemeral character in the Barracouta. They occurred in men belonging to a working party on shore at Hog Island opposite Nassau, repairing H.M.S. Nimble. Two of the cases were accompanied by diarrhœa and hæmorrhage from the bowels. The cause of the latter complication is stated to have been drinking water collected in wells cut out of the limestone rock on Hog Island, which besides other impurities had been rendered brackish by a recent hurricane.

There were fifteen cases of primary fever in the Buzzard; of these, two are classed as remittent, and the remainder as ephemeral. The duration of each of the cases of remittent

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fever was twenty-one days; and of each case of ephemeral fever between four and five days.

There were twenty-six cases of primary fever in the Cadmus, in which vessel also eleven cases of yellow fever occurred during the Christmas quarter; during that quarter there were also ten cases of primary fever, five of which were classed as remittent, and five as ephemeral. It is very probable that some of these were merely modified forms of the more malignant disease. The surgeon* says, with reference to the cases of primary fever:—

"Only one case of fever, and that of a mild ephemeral nature, came under treatment during the first quarter of this year. The second quarter showed one case of remittent fever and seven of simple or ephemeral fever. The third quarter, five cases of continued fever, two of remittent, and one of ephemeral. The fourth quarter, five of remittent, five of ephemeral, and eleven of yellow fever. Thus it will be seen that febrile disease commenced with but a single mild case in the winter months; that during the spring months these ephemeral cases increased in numbers; that during the summer a continued form of fever took the place of the simple ephemeral, and remittent fever appeared; and that during the autumn months the remittent form prevailed (ephemeral cases being also common at the same time), and the disease finally culminated in the hæmagastric, or true yellow type.

"Now the circumstances of this ship—that is to say, her position, her internal condition with regard to cleanliness, ventilation, discipline, and the duties of her crew—were precisely the same (or, at all events, very nearly the same), for at Port Royal, or at one of the outports of Jamaica, we lay for nine months, with the exception of ten days on one occasion, and fifteen on another, when we visited Turk's Island. The ship was clean, and I believe wholesome throughout; no bad stench was ever perceived on board, but at times there was some bilge smell when the pumps were being worked in the mornings, and the 'head' was occasionally offensive. The ventilation by the ports in the ship's side were scarcely ever interrupted; the diet, &c., of the ship's company was uniform; and the drills and other occupations of the men were regular and not oppressive. Land and sea-breezes prevailed commonly throughout the summer months; but calms, rain, and squalls were experienced during the autumn, and the temperature in September and October was exceedingly high, higher than it had been known at Kingston for many years. The nights, especially during the autumn, were particularly oppressive on board. Sleep, when obtained, was anything but refreshing, and the days of course were either passed in listlessness and languor, or in a state of feverishness with debility, difficult to describe."

The

* Surgeon James Johnstone.

The cases of primary fever, excepting in the probable relation some of them had to the yellow fever which appeared at the end of the year, do not appear to have been of much severity, although some of those classed as continued and remittent appear to have been tedious. The average duration of each ephemeral case was a little over six days.

There were thirty-nine cases of primary fever in the Constance, twenty-eight of which are classed as febricula, and eleven as continued. The majority of these cases occurred towards the latter end of the first quarter and beginning of the second quarter of the year, when the vessel was at Barbadoes. They were of little importance as regards the severity of their symptoms, but one or two were followed by a somewhat protracted debility. A difficulty is said to have been experienced in finding a cause for this outbreak of febrile disease, there being nothing of a similar nature on shore. Its probable source is, however, said to have been a large sewer, which was close to the landing and bathing place, the mouth of which was only covered at extreme high water, the stench at all other times being most noxious. The bathing was stopped, but, as the vessel soon after proceeded to sea, where the fever speedily ceased, its origin was left in doubt.

There were eight cases of primary fever in the Cordelia. Excepting that a good deal of debility remained in many of the cases after all the febrile symptoms had been subdued, they do not appear to have been of much importance.

There were thirty-six cases of primary fever in the Cygnet, thirty-four of which are classed as remittent, and two as febricula. The average duration of each case of remittent fever on board ship was over ten days; but this gives little or no information as to the total loss of service derived from them, as nine cases were sent to hospital. The ephemeral cases were of a very trifling character. Most of the disease appears to have been contracted at Morant Bay, but the information given in connection with them is of a very meagre character. The medical officer* says:—

"We arrived at Morant Bay on the 24th of January, and there we continued to add cases of fever almost daily. This is not surprising, as at the head of the harbour there was a considerable extent of swamp grown over with mangrove bushes, the leaves of which continually

* Assistant Surgeon C. C. Mitchinson.

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continually fall and rot in brackish, not salt water. The stench from this place was sickening when approached, although it was not noticed in the ship, which was anchored a mile distant."

There were twenty-two cases of primary fever in the Doris, five of which were classed as continued and seventeen as remittent. The average duration of each of the former cases was between nine and ten days, and of each of the latter about six days. With regard to the latter cases the surgeon* says:—

"The only cases to which I would particularly allude here are those of fever, which began to appear on board this ship about the middle of November, in the first instance in the cases of several men already on the sick-list with other complaints, and who occupied berths on the forepart of the maindeck, exposed a good deal to the strong land breezes which blew at night very regularly at that time, and which no doubt had much to do with the development of these cases. Nine cases occurred afterwards in other parts of the ship, to the extent of seventeen in all, but none of them assumed a severe form, and they yielded readily to treatment, generally within eight days. All the cases were of the remittent type, and invariably attended with a good deal of gastric disturbance. As treatment, in nearly all cases, an emetic of ipecacuanha, followed by an active cathartic and a few doses of quinine, sufficed to effect a cure. At that time fever was prevalent in Kingston and at Morant Bay."

There were eighty-four cases of primary fever in the Duncan, two of which are classed as continued and eighty-two as febricula. The average duration of each of the former cases was thirty-one days, and of each of the latter between six and seven days. In consequence of the death of the surgeon of the ship, but little information is given in connection with these cases. They all, however, occurred in the first quarter of the year, at Jamaica, where the same form of fever was prevailing extensively on shore, and in the different ships in harbour.

There were only two cases of primary fever in the Fawn, and they were of an ephemeral character. The same may be said of six cases which occurred in the Gannet.

There were twenty-four cases of primary fever in the Jason, nine of which are classed as remittent and fifteen as ephemeral. With the exception of one ephemeral case, they all occurred in the month of December, after the arrival of the

* Surgeon H. Arnot, M.D.

the ship within the tropics. The remittent cases were almost all of a mild type, though in two or three cases the seizures were violent, and convalescence lingering.

There were five cases of primary fever, of a mild and unimportant character, in the Lily.

There were fifteen cases of fever in the Niger, two of which were of the continued type, with an average duration of about forty-five days; and thirteen are classed as febricula, each case being about nine days under treatment. Both cases of continued fever were in young subjects, and in neither could any cause be assigned for the disease, occurring as they did at different times and in different climates, and there being no other cases resembling them.

In the Nimble there were twenty-two cases of primary fever, all of which are classed as remittent. Of some cases which occurred during the first quarter of the year, the medical officer* says:—

"Ten cases of remittent fever were placed on the sick-list during the quarter ending the 31st of March. Six of these occurred at Port Antonio, and the remainder whilst cruising between Black River and Savannah La Mar. The average duration in each case on the sick-list was five days. The symptoms were of a mild character in all the cases, with the exception of one, that of a boy, who was ultimately sent to Jamaica hospital. This case occurred at Port Antonio, which is one of the healthiest ports in Jamaica; the weather was cool at the time, no fever existed on shore, but mild cases contracted at Port Royal had been prevalent on board the ship during the two previous months. The symptoms were of a mild character until the fifth day of the disease, whey they assumed a low type; bilious vomiting and diarrhœa set in, and the patient was at one time unconscious for nearly twenty-four hours, with a dry brown tongue and very feeble pulse. In this case the patient, though in a sinking condition, was restored by the timely use of brandy, in ounce doses every hour. Wine was tried at first, but did not prove a sufficiently powerful stimulant."

In the following quarter several mild cases of remittent fever occurred, some of them being in the persons of those who had suffered during the previous quarter. They are mostly attributed to insolation.

There were four cases of primary fever in the Pylades, two of which appear to have been of the enteric type; one of them

* Assistant Surgeon D. Donovan, M.D.

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them is, however, styled gastric fever. The surgeon,* in remarking on these cases of fever, says:—

"One case of slight continued fever, without any unfavourable symptoms, occurred in a marine, who was well and to his duty in fourteen days. The other happened to a seaman who was on leave for twenty-four hours, and returned complaining of lassitude and headache, with diarrhœa and abdominal tenderness. The symptoms ran on, the head became affected, and a typhoid type was clearly manifested. He was sent to the military hospital, where he went through the most marked symptoms of the disease, and was much reduced, bed sores having formed; but he was in a fair way of recovery when we left."

He is of opinion that the disease was contracted on shore, where it was prevailing among the lower orders, and in summer is not uncommon among the soldiers of the garrison. The case reported as gastric fever appears to have been very much of the same character.

All the cases of primary fever in the Rosario (nine in number) were of an ephemeral nature.

There were also nine cases of primary fever in the Royalist, one, stated to have been of the continued type, was immediately discharged to hospital; the remainder, which are classed as remittent, were treated on board, and appeared to have been tedious in their recovery, the average duration of each case being over three weeks.

There were forty-eight cases of primary fever in the Sphinx, forty-three of which are classed as remittent and five as febricula. The majority of these cases occurred in the Lady quarter of the year, and were attributed to the change experienced in passing from Nova Scotia to Port Royal. The surgeon† says:—

. . . . "The same type of fever was prevalent amongst the other ships at Port Royal, at this time but in a milder form. The various ports of the Island that we visited were perfectly healthy. The usual symptoms in the commencement were severe pain in the back, chilliness, lassitude, headache, giddiness, tenderness on pressure over the eyes, heat of skin, tenderness at the epigastrium, and sometimes tenderness over the liver, a dry furred tongue, red at the edges, accessions of fever occurring in the evening, and lasting generally through the night. These paroxysms of fever lasted for about three or four days; in some of the severe cases delirium occurred. In favourable cases convalescence was rapid; in others low

* Surgeon H. Harkan. † Surgeon J. Lee Sands, M.D.

low fever set in, and boils, and many relapses took place. Considering these fevers to be due in some measure to malarious influences, I at first administered large doses of quinine and freely acted on the bowels; but I afterwards found that diaphoretics, saline effervescents, with cold to the head during the remission, proved more successful. After about forty-eight hours I administered quinine in six or eight-grain doses three or four times a day, and continued it in smaller doses during convalescence; in some cases convalescence was very rapid. The cases of febricula were of the usual mild type, and were only a few days under treatment."

There were thirty-three cases of primary fever in the Steady, most of which were of little importance. The average duration of each case on board ship was between six and seven days.

There were fifteen cases of primary fever in the Terror, six of which were classed as continued and the remainder as febricula; some of the cases of continued fever were of the enteric type. The medical officer* says with reference to these cases:—

"Of the important class of febrile diseases two forms were observed, the continued typhoid enteric fever, and febricula. On the 27th of December 1865, one case of enteric fever had been sent from the Albacore gun boat to hospital, but from that time up to the beginning of June no other examples were observed. On the 5th and 28th of that month two cases of diarrhœa were sent to hospital, with so much depression as to lead me to believe that both would turn out cases of fever, a belief verified by the results. Two presenting well marked and usual symptoms occurred on the 16th of July and the 14th of August respectively, and one was sent to hospital on the 2nd of August as a case of febricula, so much did the symptoms resemble this mild endemic fever. This disease had been prevailing in many parts of Bermuda ever since the epidemic of yellow fever in 1864. It had attracted attention first in the Winter of 1864–5, in a place called Bailey's Bay, near Saint George's Ferry, by its severity and fatality, and had apparently spread from thence over the mainland to Hamilton where it had been working its deadly effects for a whole year before we felt its effects in Ireland Island, and in Somerset for months before it came under our notice. Frequently whole families of the coloured population were attacked. If filth, ill-drained, ill-ventilated, over-crowded houses, afford a soil for the propagation of this fever, it will find an appropriate one in all the dwellings of the coloured people, and in many of the white. On Ireland Island it prevailed to some extent among the civil population of the dockyard, during June, July, and August; and, though cases had occurred at rare intervals, was more common than it

* Assistant Surgeon Alex. Crosbie, M.D.

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it had been for the last three and a half years. In the beginning of August two cases were sent from the the Albacore gun boat, and one dying in hospital, the characteristic lesion was found on post-mortem-examination of the body."

None of the cases of primary fever in the Wolverene (ten in number) were of any importance. They were all classed as febricula.

Yellow Fever.—Eleven cases of yellow fever appear on Table VI. and all in connection with the Cadmus. On Table IV., however, besides five of these which proved fatal, there will be seen the entry of one death from yellow fever from the Aboukir, and three from the gun boats. The case in the Aboukir was that of a seaman who joined the ship from the merchant service a few months previously, and who in the early part of December, when a form of fever which is classed as remittent was prevalent in the ship, presented himself with symptoms of that disease, and was sent to the Royal Naval Hospital at Jamaica, where he died with all the symptoms of yellow fever. That malignant disease had at this time appeared in some of the merchant shipping at Kingston, where this man had been on leave a few days previous to his being placed on the sick-list. There had also at this time been one or two cases in the gun boat Nettle and in the Cadmus.

In the Cadmus there were eleven cases of yellow fever, five of which proved fatal. It is probable, however, that other febrile cases, which occurred at the same time, but were classed as remittent or ephemeral, may have been modifications of the same disease. They occurred during the Christmas quarter of the year when the vessel was at Jamaica, and in reference to them the surgeon says:—

"During the first and second months of this period three sharp cases of remittent fever, and one case of a simple ephemeral nature, came under treatment, and on the 8th, 9th, 10th, 11th, and 12th of December, a few days after leave had been granted to the ship's company at Port Royal, Jamaica, seven cases were discharged to the Royal Naval Hospital, designated remittent fever, but all of which soon showed the true hæmagastric or yellow type. The first person attacked, a boy, was taken to hospital two days after the first symptoms showed themselves, and in less than forty-eight hours after his admission he died with black vomit. The remaining cases were on our leaving Jamaica, on the 13th of December, in a very critical condition."

The Cadmus was very judiciously at once ordered to the northward,

northward, but as her destination was only as far north as Bermuda, it is fortunate that no more cases occurred on board of her. On the day of her sailing, indeed, two cases were placed under treatment, and subsequently other two, but they did well. On arrival at Bermuda the vessel was placed in strict quarantine, and the disease fortunately did not extend to the island.

The history of the outbreak of yellow fever at Jamaica at this time, in so far as it affected the Naval Service, is perhaps better shown by the following report and analysis of the cases and pathological appearances, by the Deputy Inspector General* of the Royal Naval Hospital at Jamaica, for the Christmas quarter of the year.

"During the Christmas quarter, nine cases of yellow fever have been received into hospital, of which eight have terminated fatally. The first case received was that of the officer commanding the gun boat Nettle. The Nettle had been employed between the 1st of October and the 25th of November at Morant Bay and Port Morant, spending a week alternately at each place. At Morant Bay this officer resided in the town, passing scarcely any time on board. The servant died of yellow fever at Morant Bay on the 22nd of November after about four days' illness; and a staff assistant surgeon, who lived in the same house, and who attended him, was subsequently attacked with the same disease, and died on the 10th of December. The Nettle left Morant Bay on the evening of the 24th of November, arriving at Port Royal on the following morning. The weather at Morant Bay and Port Morant had been unseasonable, and there had been much rain. Of the fifty-two days passed at these places, not more than a fifth or a sixth could be called fine. Up to the time that the Nettle left Morant Bay no other cases were known to have occurred, and there had been no unusual amount of sickness, nor any cases of yellow fever, as far as I have been able to ascertain. The Nettle arrived at Port Royal on the 25th, and on the following morning sent six men to hospital for fever, but which scarcely deserved to be called fever. The commanding officer, who on the arrival of the Nettle at Port Royal had taken up his quarters on board the Aboukir, was attacked on the 26th and brought to hospital on the 27th; but in presence of the mildness of the attack in the other cases admitted from the Nettle, and the absence of any information at the time, of the nature of the disease of which the servant had died, yellow fever was not at first suspected. He died, however, on the 6th of December, the eleventh day of the disease. On the 10th of December three seamen suffering from fever were admitted from the Cadmus, which ship had been lying at Port Royal since the 21st

* Deputy Inspector General Richard D. Mason.

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21st of November, on which day she returned from a short visit to Turk's Island, and had been very healthy. The whole ship's company, including those attacked with fever, had been on forty-eight hours' leave at Kingston, between the 3rd and 7th of December. On the 11th, three other cases of fever, of which one was a mild case of continued fever, were received from the Cadmus, and on the 12th one of yellow fever. Of these six cases of yellow fever, one only, the last admitted, terminated favourably, the disease having appeared in a much milder form. On the admission of these cases, occurring as they did in a most virulent form, I thought it advisable to remove all our convalescents to the Aboukir, retaining in hospital only those who were confined to bed, and between whom and the yellow fever patients there could be no communication. On the morning of the 13th of December the Cadmus left for Bermuda. On the 19th of December a case of fever was received from the Aboukir (seventh day of illness) having very much the appearance of typhus, and not in any way resembling the cases we had received from the Cadmus. This man soon lapsed into a low state of muttering delirium, and died comatose on the 25th of December (the thirteenth day of illness). On the 21st, the last case received was brought in from the *Nettle*. The man, a corporal of Marines, had returned from leave at Kingston ten days previously, and had first felt ill on the 16th; he was received here on the sixth, and died on the ninth day of his illness. During this time and for months previously, Kingston and Port Royal, the only places visited by the seamen, as well as all the neighbourhood, had been healthy and no cases of yellow fever are known to have occurred, except that after the 20th of October a few cases occurred in the merchant ships at Kingston, and in the Royal Mail Packets from Saint Thomas, where the disease has been prevailing. These cases were nearly all sent to the Public Hospital at Kingston, where three-fourths of them ended fatally. It is probable that the infection was introduced by the vessels arriving from Saint Thomas, the crews of which and the crews of the men-of-war met most likely in the same houses when on leave. One man stated that when in Kingston he had been lodging with some merchant seamen belonging to a ship part of the crew of which were in the Kingston Hospital with yellow fever; and if it be the case that an individual can communicate the disease without being himself actually under its influence at the time, we are able to explain how the cases originated. The last two cases which were under treatment in Kingston Hospital were from two colliers arrived direct from Swansea and Cardiff, but upwards of fourteen days had elapsed between the arrival of the ship and the admission of the men to hospital.

"The cause of the disease can hardly be said to have been in any one of the ships affected. In the Nettle, the two persons first attacked were very little on board, and there was an interval of twenty days between the date of the second and third attacked from this vessel. . . . . The Cadmus has been on the Jamaica coast the last nine months, during which time she has been healthy. At the time the cases of fever occurred on board, she was being prepared for sea. The holds were being unstowed, and a foul smell from the bilges was perceived, originating, probably, in the unstowing and restowing

restowing of the holds. The Aboukir is a clean, clear, well ventilated ship with a very small complement; but as I have said above, all those attacked had been on leave at Kingston, and since leave to Kingston has been stopped no fresh cases have appeared. There may have been some atmospheric causes existing, for at the same time this disease was raging at Saint Thomas and Demerara.

"The symptoms were in every case ushered in by high febrile excitement, there being slight rigors in a few only. The patients generally complained of much frontal headache and lumbar pain, with more or less pain or soreness at the epigastrium. Pain in the limbs was not much complained of. The skin was at first hot and dry, the pulse not much increased in frequency, ranging from seventy-six to ninety-six, and was generally soft and compressible. The temperature was raised throughout, ranging from 100° to 105°, and in one case, two hours before death, to 107°. Respiration was unaffected; the eyes generally clear: the tongue was always moist, sometimes quite clean, but most frequently presenting a creamy coating, white or yellow; nausea, or more frequently vomiting, existed from the commencement, and in some cases almost everything taken was rejected. The bowels were generally free and the discharges natural. Generally after the second or third day the febrile symptoms subsided, the headache and lumbar pains (the latter having been sometimes very severe) passed off; the skin became moist; the tongue sometimes became quite clean, and the pulse fell nearly to its ordinary frequency; but other symptoms increased in severity. The irritability of the stomach increased, and the matters vomited generally took on the character of black vomit. The conjunctivæ became of a dark yellow colour, the urine was like dark sherry, from the presence of bile, and contained albumen often in large quantity, sometimes to such an extent that the urine on the application of heat became nearly solid. In all cases but two, abundant large opaque tube-casts were found. The urine was often retained, rendering the use of the catheter requisite, while in others it was much diminished in quantity and sometimes almost suppressed. The tongue often remained moist and nearly clean up to the last; in some cases it became dry, and had an appearance like that of raw beef. Hæmorrhages from the mouth, fauces, nostrils or bowels showed themselves, but excepting in the case of the commanding officer of the Nettle they were slight. In one case petechiæ made their appearance; in another there were faint circular purplish spots on the chest, abdomen, and groins; and in three cases an eruption of herpes labialis, which on admission presented the ordinary character, but afterwards in two cases became hæmorrhagic. In one case the attempt to introduce the catheter, brought on a violent epileptic convulsion, which lasted about two minutes and was shortly followed by death. Delirium was present in about one-half the cases; in two it was violent; in one accompanied by much screaming and swearing; in two in a very quiet form, and in one of them in a mild jocose form. In one case during the last hours there was morbid acuteness of hearing; pain along the course of the pharynx and œsophagus and soreness of the throat were sometimes complained of, probably owing to the acid nature of the matters vomited. The act

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of vomiting sometimes caused pain and spasms; hiccough is noted in only one case. Black vomit was present during life in eight cases, and in the remaining case it was found in considerable quantity in the stomach after death. In some cases it was thrown out in jets to the distance of several feet, apparently without effort, as the patient lay on his back, and the bedclothes were frequently covered with it.

"The treatment adopted varied in the different cases, and was directed generally to the relief of urgent symptoms, but even this end was rarely obtained. Diaphoretics and salines were given to moderate the fever and promote the action of the skin; ice and iced water to lessen the thirst; effervescing draughts, creasote, chloroform, with sinapisms to the epigastrium to relieve the irritability of the stomach; astringents, acetate of lead, sulphuric acid, &c. by the mouth, and astringent injections by the rectum, to check the hæmorrhagic discharges; and as much nourishment in the form of beef tea, arrow-root, extractum carnis, and Mistura spiritus vini Gallici, and wine, both by mouth and rectum, as seemed advisable, or as the patient would take. The cases received from the Aboukir and Nettle differed from those received from the Cadmus, in the lateness of the period at which the true nature of the disease showed itself (the case from the Aboukir, admitted on the seventh day, only presented pathognomic symptoms on the thirteenth day; in the first case from the Nettle, admitted on the second day, those symptoms appeared on the fifth day; in the second from the Nettle, admitted on the sixth day, they appeared on the seventh day), and in the protracted duration of the disease, death having occurred on the thirteenth, eleventh, and thirteenth days; while in the five cases from the Cadmus death occurred, in two cases, on the fifth day; in two on the sixth; and in one on the eighth day. In the case from the Aboukir there was no yellowness of skin either before or after death, scarcely any epigastric tenderness, no vomiting, very slight frontal and no lumbar pains, a quick pulse, and furred dry tongue, and absence of bile or albumen in the urine until the morning of death, when albumen was found, about one-eighth of the contents of the tube being rendered solid by heat (there was a free urethral purulent discharge in this case), and about two hours before death one appearance of coffee-ground vomit.

"An examination of the body was made in every case.

"*Head.*—In three only, those in which there was delirium ending in coma, was the head examined, and in these the principal changes noted were those of inflammation or congestion of the brain or its membranes, with some effusion into the ventricles. In one case the calvarium adhered to the dura mater.

"*Chest.*—Examined in two cases; in both there was some serous effusion into the pleura, and in one there were extensive adhesions, but not recent. In each there was about one ounce of serum in the pericardium; the lungs were in both crepitant but congested. In one (the man from the Aboukir) there were several ounces of bloody serous fluid in the right pleura, and in the left a still larger quantity of black vomit, which had escaped from an opening in the œsophagus

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on its left side, about three quarters of an inch in length, and situated about an inch above the diaphragm; and separated from this by about an interval of two lines was a round hole also in the œsophagus, the size of a pin's head, the edges of which were black as if from mortification, or from having the vomit in contact with it, as occurs in the intestines. The examination of the chest was being carefully conducted, and this opening cannot be accounted for as an accident. Can it be explained as the result if post-mortem digestion, or corrosive action of the contents of the stomach? In this case the pleuræ were healthy, lungs crepitant but very full of dark blood, especially at the upper and posterior part. The endocardium was of a deep mahogany colour, nearly black on the valves. The interior of the aorta, as low down as the diaphragm, was of an intense bright salmon colour. There were soft black clots on the right side of the heart, and the blood, when exposed in a thin layer, turned to a bright scarlet.

"The *stomach* was in all cases more or less congested. In one case it was intensely congested, and everywhere of a dark chocolate colour. In the other cases the congestion was chiefly in patches, and those situated always about the cardiac orifice, and in two at both cardiac and pyloric orifices. In the case from the Aboukir the vascularity was limited to rather less than the cardiac half, and abruptly limited by a curved line, the circumference of a circle the centre of which was the cardiac orifice. The stomach in all cases contained black vomit; in some cases intensely black; examined as ejected, and found in the stomach after death, in one or two cases only could actual blood-globules be seen, and then very faint and transparent. In all, a large quantity of reddish yellow amorphous matter, probably the hæmato-globuline, with crowds of cylindrical epithelium. No black matter was seen in the field of the microscope.

"The *intestines* were mostly more or less congested, not uniformly but in patches, and in one through the whole course from the duodenum to the rectum. In one case they were normal, and in two others free from congestion, but dyed of a dark slate colour, and all, with the exception of the one in which the appearances were normal, contained black vomit. In one the appendices epiploicæ presented an unusual appearance, being of the size of calavances, and hanging fringe-like from the whole length of the colon. In the Aboukir's case, Peyer's patches were very distinct and remarkably long, most of them measuring three and a half inches in length. About nine inches from the cæcum, the ileum had a diverticulum one and a half inch in length, and along the whole course of the rectum were numerous oval or circular sharply defined ulcers, the largest half an inch, and the average a quarter of an inch in diameter, not having any surrounding vascularity, and as if punched-out of the mucous membrane. In several there was a small quantity of serous fluid in the peritoneum; in one instance as much as ten ounces.

"The *liver* in most cases was more or less congested, but in five only did it present the usual fawn-yellow appearance. In two of the others there was no apparent change, but in all these the microscope showed an enormous accumulation of oil-globules.

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Some of these oil-globules were of large diameter and were quite distinct from the hepatic cells, and were not contained in the cells as in ordinary fatty liver. In the Aboukir's case the liver was flabby, but its structure appeared healthy, and under the microscope did not show a trace of oil-globules, and the hepatic cells were quite normal and distinct, which they were not in the others.

"The *spleen* was generally normal; in one only was it at all enlarged and soft. In all the others it was of natural size or rather smaller, firm, and light in colour. In the Aboukir's case, the exposed surface of a section became paler (pinkish) after a few minutes.

"The *gall bladder* contained bile in all cases, and the amount was in proportion to the duration of the illness, being abundant in the rapidly fatal, but diminished to two drachms in the protracted ones.

"In the *bladder* some urine was always found. The mucous coat of the bladder was generally yellow and congested, but in two cases it was of a light orange colour, and some yellow creamy matter could generally be scraped off it, which under the microscope showed no pus corpuscles, but abundant cylindrical epithelium, with very large nuclei, propably from the ureters.

"The *kidneys* were generally congested and had a fatty appearance. In one they were of a remarkable shape, large, and very long and lobulated, with a small quantity of yellow creamy matter in the pelvis of the kidney. In one case they weighed nine ounces each, were very firm and dense, and on section showed only two pyramids, one at each end, there being faint traces only of the central ones. The investing membranes of the liver and kidneys were in all cases very easily detached."

With reference to the remark in the above report, that "up to the time the Nettle left Morant Bay, no other cases were known to have occurred, and there had been no unusual amount of sickness, nor any cases of yellow fever, as far as I have been able to ascertain," it may be well to state that the surgeon of the Cadmus, in the remarks on his return for the Christmas quarter, observes that, as far back as the month of July, it was reported that a merchant ship from St. Thomas, then lying at Morant Bay, or one of the eastern ports of the island, had cases of yellow fever on board: and as bearing upon the possible source of the introduction of the disease into the Cadmus, it is interesting to know that the chaplain of that vessel had on several occasions visited the commander of the Nettle during the last days of his illness, and that the surgeon was at his bedside about an hour before his death.

Intermittent Fever.—The only vessel in which this form of fever was very prevalent was the Cygnet, in which there were forty-seven cases. The medical officer attributes them to

to exposure to malarious influences at Black River, Jamaica, and at Savannah La Mar. He says:—

"We arrived at Black River on the 16th of July. The country around is flat, swampy, and overgrown with stunted vegetation. This neighbourhood is noted all over Jamaica for intermittent fever, called 'Black River fever,' and the inhabitants who are in a position to do so remove to higher ground to re-establish their health. Savannah La Mar is, as its name implies, built on a low flat plain barely above the level of the sea, but I nevertheless think it more healthy than Black River. We remained a week at each place, and during that period had a great deal of fever."

Diseases of the Brain and Nervous System.—There was a trifling increase in the ratio of cases coming under this head compared with the preceding year. There were three deaths from apoplexy, four from delirium tremens, and one from tetanus.

A fatal case of heat apoplexy occurred in the person of a stoker of the Barracouta. He was brought up from the engine-room on the morning of the 5th of October, having been found lying across the steam-pipe of the donkey engine, where he had evidently fallen. He had been apparently in that situation for the space of three or four minutes, judging by the injuries done to the soft parts. On examination he was found to be breathing stertorously, totally insensible, with motionless and contracted pupils, livid countenance, eyelids dark coloured, pulse very much accelerated, skin unusually dry; in fact, he had all the symptoms of heat apoplexy. The penis, scrotum, and pubic region, and the external and internal surface of both thighs were severely scalded, having a dry yellow parched appearance. The patient was immediately placed on his back, and cold applications were perseveringly applied, with ice-bags to the nape of the neck, the vertex, and the forehead. The head was shaved, and the cold douche applied to the head and face. Ammonia was repeatedly applied to the nostrils, mustard poultices to the legs and feet, small quantities of stimulating liquids, viz. brandy and gin, were administered, but notwithstanding these measures his breathing became slower and more laboured, and involuntarily discharge of fæces and urine took place. These measures were continued for an hour with no improvement, and he died in the forenoon. The following report of the post-mortem examination of the body is by the surgeon* of the

* Surgeon C. R. Godfrey.

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the ship from whose detailed report the foregoing abridged history of the case is taken.

"Rigor mortis well marked. Great rigidity of the muscles of the neck. A small contusion over the frontal bone was noticed. On removing the scalp, a small quantity of blood was found extravasated beneath the integument over the frontal bone, corresponding to a small circular bruise externally, where no doubt he struck his head when he fell across the steam-pipe. On removing the calvarium, the superior longitudinal sinus was seen to be engorged with blood, and on removing the dura mater the cerebral veins were also seen to be greatly congested, with extravasation between the membranes and the surface of the brain. There was also engorgement of the vessels of the pia mater. On removing the brain a large quantity of blood was found effused into the posterior occipital fossæ, caused apparently by a small rupture in the lateral sinus of the left side. The left lateral ventricle was filled with bloody serum, and there was a small quantity of serous fluid in the right lateral ventricle. There was no effusion into the substance of the brain. The veins of the choroid plexus were much engorged. Externally the body was found to be much scalded, especially in the pubic region, the scrotum and testes suffering most. The thighs were severely scalded. The patient appears to have fallen across the pipe, so that the pubic region, the dorsum of the penis, and the scrotum, were in contact with it for some minutes."

A fatal case of apoplexy following a debauch occurred in a seaman of a gunboat. She was in tow of the Pallas at the time, and the surgeon of that vessel, who saw the man, says that he considers that he died of apoplexy complicating delirium tremens.

There was a fatal case of apoplexy in the Terror, in the person of a petty officer. It occurred during a debauch while the man was on leave on shore. He was found dead, lying in front of two chairs on which he had laid down to sleep. On post-mortem examination of the body, rigor mortis was well marked. There was lividity of the posterior surfaces, and of the sides of the neck. The cuticle was abraded from a part of the right axilla by friction and incipient putrefaction. There were no external marks of violence. The countenance was pale and composed, with a little frothy saliva about the lips. The left lung was slightly adherent to the thoracic wall from the apex to the base, over the lateral and anterior surfaces, by a thin but tough plastic layer. There was hypostatic congestion of both lungs, but they were everywhere healthy and crepitant. The heart and pericardium were healthy, and there was no aneurism nor rupture

ture of any large vessel. The membranes of the brain were healthy, the substance rather soft from commencing decay. On the removal of the brain from the cranium, a large clot of blood of the size of a hen's egg escaped from the lower surface of the right middle hemisphere, which on examination was found to have occupied the front of the right lateral ventricle, and to have torn up the brain substance in the neighbourhood of the right corpus striatum.

The fatal case of tetanus was somewhat peculiar. It occurred in the person of a leading seaman of the Cygnet, who was placed on the sick-list on the 16th of August, having had the great toe of the left foot crushed by the slide of the pivot gun. Under the influence of rest and water dressing the wound readily healed. About three days after his admission to the sick-list he was attacked with ague, which was treated with quinine, and all febrile symptoms disappeared. This affection was looked upon as the ordinary intermittent fever of the locality, the vessel at this time being at Black River, Jamaica. On the morning of the 24th of August this man was found in his hammock partially insensible, with a cold leaden skin, and a very weak and slow pulse. His eyes were open and fixed, and the pupils dilated. Hot brandy-and-water was at once given; hot-water bottles applied to the surface, and friction of the skin employed. On feeling his feet, to find if they were warm, it was observed that the toe which had been injured was now ulcerated. After about half an hour he became conscious, the skin warmer, and the pulse full. The ulcer was dressed, and hot wine-and-water given every two hours, and beef tea frequently. Under this treatment he felt better, and slept during the early part of the afternoon. About 6.30 p.m., however, he was again attacked as in the morning, but in addition he had stiffness of the muscles of the jaw, dysphagia, and dyspnœa. Presently he had arching of the back, great rigidity of the abdominal muscles, an anxious countenance, and dilated and fixed pupils. An enema of turpentine and castor oil was at once exhibited, a blister applied to the spine and nape of the neck, and hot water to the feet and legs. He took brandy-and-water with ammonia, but had much difficulty in swallowing. He gradually sank and died at 8.30 p.m.

Delirium Tremens.—Twenty-six cases of this disease were

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under treatment during the year, of which four proved fatal. Twelve of the cases occurred in the Duncan, in which ship there were no fewer than sixteen cases during the previous year. Five cases occurred in the persons of quarter-deck officers, two in warrant officers, three in petty officers, two in stokers, and two in marines. The ratings of the twelve persons affected in the Duncan cannot be obtained, no journal having been received from that ship, and the surgeon being since dead.

Diseases of the Organs of Respiration.—There was an increase in the ratio of cases coming under this head, compared with the preceding year, equal to 68 per 1,000 of mean force. This altogether arose from the greater prevalence of common catarrh. There was also a slight increase in the invaliding rate, but the death-rate was lower.

Catarrh was very prevalent in the Aurora in the Midsummer and Christmas quarters of the year. The surgeon* says:—

"The sudden change from the south to this part of the station (Halifax), where the winters are long and severe (there remained in the river on the ship's arrival considerable quantities of ice), was at first a good deal felt, and caused a large number of catarrhal complaints; and these again became prevalent towards the end of the year. There has been a much greater quantity of rain during the summer than has been customary, and altogether the weather has been unseasonable."

In the Duncan also there were a great number of cases of catarrh, all referable to the severity of the climate, and the necessary exposure of the men.

Diseases of the Heart and Bloodvessels.—There was a great decrease in the ratio of cases coming under this head, compared with the preceding year, and the invaliding rate was also lower; the ratio of mortality was, however, the same as in 1865. Fifty cases of various forms of disease were under treatment, of which fourteen were invalided and two died.

There was a fatal case of disease of the heart in the Royalist; it occurred in the person of a seaman, who was placed

* Surgeon Ahmuty Irwin.

placed on the sick-list on the 11th of November, complaining of pain in the chest, and shortness of breath on the slightest exertion. He was a delicate-looking man, and although seldom complaining of any ailment had, during the previous six months, altered very much in appearance, his face and extremities having gradually become of a dark ash colour, with a peculiar look and fulness about the eyes. On presenting himself for treatment, he stated that he had felt the symptoms he complained of coming on for the previous three months, and that he had been slowly losing flesh. On examining his chest, dulness was found over every part, the cardiac dulness being abnormally extensive. From auscultation very faint respiratory murmur only could be heard, there being scarcely any air entering the lungs. On examining the heart, a most distinct systolic bruit could be heard towards its apex; its action was quick and irregular; he had no febrile symptoms, nor had he had rheumatism. On the following day he complained of pain in the region of the liver, which was found to be very much enlarged, extending downwards to a level with the umbilicus, and over to the left of it. On the 13th, the bruit was not quite so audible as on the previous day; he felt easier when sitting up than lying down, but complained only of distressing dyspnœa. He died suddenly a little after noon of the 15th. The following report of the post-mortem examination of the body is by the surgeon* of the ship, from whose detailed history of the case the above abridgment has been made:—

"On opening the thorax, the pleural cavities were found filled with serous fluid; the lungs were healthy, normal in colour, very little air in them, and they were compressed to about one-third of their natural size by the surrounding fluid; no adhesions; the heart was enlarged; the cavities contained some fluid blood; the mitral valves were both broken down, owing to the rupture of the chordæ tendineæ. One of the semilunar valves had given way at its junction with the aorta; the entire substance of the heart was so softened that it could be easily broken down with the fingers. In the abdomen the liver was the only viscus examined; it was found very much enlarged, and filled with blood. The examination was not carried further, the cause of death being evident."

A case of passive hæmorrhage proved fatal in the person of a ward-room servant of the Pylades, a negro, a native of Barbadoes. He was placed on the sick-list on the 15th of March,

* Surgeon John Fisher.

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March, complaining of severe cough by night and day; for some time there was no expectoration; the cough was loud, dry, and ringing. No alteration in his symptoms took place until the 23rd, when bleeding from the nose occurred, which could not be checked by the injection of cold water, or the tincture of the sesquichloride of iron on lint; he would not allow the nares to be plugged. On the morning of the 24th, the oozing of blood from the nose continued, and was only checked for a short time during the day, when he fell asleep and the blood coagulated; on his waking, however, he blew his nose, and the bleeding recurred with increased violence. At 3 p.m. of that day, oozing of blood from the eyelids and puncta lachrymalia occurred. At 7 p.m. the report of the surgeon of the ship is as follows:—

"Is very faint from the continuous drain; urine bloody; both eyelids bleeding along the whole mucous membrane, puncta and caruncula, forming an extraordinary and alarming sight to people about; pulse 120, weak, almost imperceptible; ordered two ounces of brandy every third hour; beef-tea, and a draught composed of sulphuric acid and tincture of opium.—*Midnight.* Improved in strength; less copious oozing, but it still continues from eyelids and nose."

On the 25th of March the report is:—

"Less oozing of bloody serum; blood coagulated about the lips and nose; urine scarlet; pulse 120, more full, soft, and bounding; cough irritating; no expectoration; pain in left shoulder and chest, sometimes in the right; minute crepitation in lungs; has taken eight ounces of brandy during the night, with beef-tea; eggs in tea and milk this morning; feels better and stronger; bowels opened once; fæces dark or black (melanous); ten grains of tannic acid and fifteen minims of turpentine in an ounce of water, were now ordered to be given every three hours, and an ounce of brandy every second hour. The hæmorrhage continued, although it appeared to be in some measure controlled by the astringents; bleeding appeared to be going on from all the mucous surfaces."

On the 28th the report is:—

"Is very weak; pulse 140, small; blood in the urine; bowels moved four times, and fæces thin and melanous, becoming scarlet on water being added to them; sometimes coughing up red mucus. The odour about the body and from the breath is very peculiar, sugary, as if from molasses, yet with a decomposing taint. As typhoid symptoms were becoming developed, it was considered advisable to send him to the Military Hospital at St. John's, New Brunswick, where he went at 9 a. m., having had early the tincture of iron; breakfast of two eggs in tea and milk, and two ounces of brandy."

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The surgeon adds:—

"He died at the hospital next day, at 4.30 a. m. The post-mortem examination revealed but little; the lungs were sound, but congested; the heart sound; bowels distended with ill-odoured gas; no ulceration of the glands; kidneys congested; liver extremely large.

"This negro always held the idea that he should die; even in health, when going about, he said the climate would kill him; yet he had no sickness; his food was good, being principally obtained from the ward-room; whether he had ague in Barbadoes was not known. Unusual lightness or weakness of internal vessels to resist the larger amount of blood driven inwards by the stopped action of the skin, appears to have been the cause of these symptoms. In the negro race, unless the skin acts strongly, the liability to disease is very great, and this indicates that they should be left in their native climate, that of the north being too severe for them. All the negroes in this vessel were torpid in the north."

An interesting case of popliteal aneurism was under treatment in the Naval Hospital at Jamaica; it occurred in the person of a stoker of the Bulldog, and the following particulars in connection with it are from the report of the Deputy Inspector General of the Hospital:—

". . . . . Stoker, ætat. 31, Her Majesty's ship Bulldog. On September the 26th 1865, he suddenly felt a pain in the left popliteal space, which, on the following morning when at work, again returned in a violent degree, and soon afterwards a pulsatory tumour of the size of a hen's egg made its appearance in the ham, and rapidly increased in size.

"Admitted into the hospital on the 30th of October, at which time, occupying the lower third of the left thigh internally and posteriorly, there was a large swelling of a doughy consistence, over the centre of which was a bruise-like discoloration. Above the swelling, over the middle third of the femoral artery, the skin was vesicated, the effect of pressure; there was no pain; an indistinct feeling of heaving was communicated by the tumour; there was no pulsation in the anterior or posterior tibials. Measurement of the limb at the lower margin of the patella, 15 inches; upper margin, 17¼ inches (on the sound side, 13 and 14). Loud bruit in ham; heart sounds weak; healthy; stated, that about the 12th of September, he struck the inside of the knee with a hammer. From the 31st of October to the 3rd of November, he had on Sigourini's tourniquet, but he could not bear pressure sufficient to stop completely the pulsation in the tumor. On the 4th of November, pressure was made by means of a pad, counter pad, and common tourniquet, the skin being protected by Emp. saponis; this could not be borne; the limb was then put on a M'Intyre splint, with a linen roller for compress, and pressure made by means of a board and two common tourniquets; this entirely stopped pulsation, and he bore it fairly; this

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was removed on the 6th, owing to some superficial sloughing, and a pad was then applied over the artery, in the groin, and a 7-lb. weight kept on it as well as we could manage it. Between this and the 11th, pressure could only be borne at intervals. On the 11th of November, a circular tourniquet (a sort of Cartes, made on board ship) was kept on all day, and the pulsation was arrested; it was removed at night in consequence of pain in the tumour, but worn at times up to the 15th. The swelling had extended and become more diffused: circumference 20 inches; discoloration increased. On the 15th (fiftieth day of the disease), ligatured the superficial femoral (under chloroform) in its upper third; he went on favourably up to the 29th; circumference 18 inches. On the morning of the 29th he had an attack of fever; at noon secondary hæmorrhage, which, in the succeeding twenty-four hours, occurred six times; controlled, but only temporarily, by pressure. On the 30th, the wound (which was looking healthy, although there was no attempt at union by adhesion) was enlarged, and the femoral artery tied three quarters of an inch above and below the original ligature; no further hæmorrhage; these ligatures separated on the eleventh and —— days; the original one on the forty-seventh day; the contents of the sac suppurated; the adjacent soft parts, the bones, and the knee joint became extensively diseased; and on the 25th of January amputation of the thigh in the lower third was performed under chloroform; anterior flap by dissection, posterior by transfixion; not more than three ounces of blood were lost. On examination of the limb, we found the whole of the articular surface of the knee-joint diseased, the soft tissues almost wholly destroyed by suppuration, and every trace of cartilage removed from the head of the tibia; the head of the femur was rough and denuded, the cartilage not removed from the inner condyle but softened, and could be peeled off; the posterior surface of the femur was for one-third up bare; the sac was lined with soft fibrin; the external condyle was bare and carious, and a probe passed some way into it on the outer side. He did well after the operation. A large bed-sore which had formed over the sacrum and some distance up, and from which some fragments of the sacrum exfoliated, healed up readily under the use of oxide of zinc ointment, sulphate of copper, and an air bed; the bone, however, protruded at the outer corner of the stump, notwithstanding traction made on the flaps by strips of diachylon attached to a cradle. On the 22nd of February, 2¾ inches of the protruding femur were removed, simply dissecting round the bone with a scalpel, using the retractor, and sawing off; no soft parts were removed; even now it was only by firm and continued traction made on the flaps by strips of plaster across a gutta percha casing, that a covering for the end of the bone was secured. When sent home on the 24th of April, the stump had healed except at two points; one at the inner angle, where there was an opening just admitting a probe, and in the centre was an unhealed small spot; the probe passed from each in the direction of the bone, which, however, could not be felt; there would probably be some exfoliation of the end of the bone."

Diseases of the Alimentary Canal.—There was a great reduction

duction in all the ratios coming under this head, compared with the preceding year. The reduction in the ratio of cases entered on the sick-list was equal to 52·9 per 1,000. This arose chiefly from the diminished number of cases of diarrhœa.

A death from hæmatemesis appears in the Return from the Cordelia. It occurred in the person of an officer, who stated that he had not felt well for some days previously, having met with an accident by falling from his horse, whereby he was much shaken, but still continued to perform his duties. He complained of weakness, nausea, and depression of spirits, and was placed on the sick-list on the 11th of March, just as the vessel was about to leave Port Royal for Bermuda. Shortly after getting to sea, the nausea very much increased, which was attributed to sea sickness, the vessel having been lying in harbour for some months. On being visited on the morning of the 12th, he was found to be very much prostrated, with a feeble pulse and anxious expression of countenance. On examining the vomited matters, they were found to consist of about two ounces of a bloody fluid. There was no tenderness on pressure over the hepatic or epigastric regions, and he only complained of a sensation of weight over the right hypochondrium; acetate of lead and opium, gallic acid, and iced acid drinks were given, mustard poultices applied, and coolness and perfect quietude enjoined. The vomiting, however, continued from time to time, everything being ejected almost instantaneously, accompanied with quantities of the same bloody fluid, and followed by extreme prostration. Champagne, in small doses, and chicken-broth were administered frequently, under which, for a time, he appeared to rally, the vomiting having ceased for some hours; but it again recurred, and continued incessant, until he sank from exhaustion at 1 p.m. of the 12th of March. No post-mortem examination of the body appears to have been made.

Diseases of the Genito-Urinary Organs.—There was an increase in the ratio of cases coming under this head, compared with the preceding, almost entirely attributable to the greater prevalence of syphilitic disease. There was a considerable reduction, however, in the ratio of invaliding, and there was no mortality.

Many of the medical officers bear testimony to the danger

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from venereal diseases incurred by granting leave to ships companies at Port Royal, Jamaica. The surgeon* of the Jason says:—

"Only three cases of primary syphilis and five of gonorrhœa appeared after leaving Plymouth, and this, after three weeks' fitting out, will contrast very favourably with former times, and speaks well for the working of the 'Contagious Diseases Act,' even before the amended regulations came into force. Little disease of any sort was contracted at Halifax, a few cases of non-infecting chancre being the results of two months-and-a-half, with general, special, and privileged leave.

"In contrast with this decided tendency towards improvement, I have to call attention to the state of sanitary matters in Port Royal, Jamaica, and having been serving on this station for upwards of six consecutive years, in three ships, I have been able to watch the rapid downward progress of this little town, from a state of almost absolute immunity from venereal disease, to that of one of the most dangerous spots (as far as this class of disease is concerned) to the health of the Navy, in the world. In the journals of Her Majesty's ship Petrel, sent from this station in 1863-64, I ventured to recommend that some effort might be made to check the impending spread of disease, and drew attention to the fact, that since the year 1863, when steamers from New York, bound for Colon, had commenced to call for coal at Port Royal, and the passengers, generally a rough set of Californian emigrants, had been landed during the coaling, a bad form of chancre was becoming common in Port Royal and Kingston, places in which such disease was before almost unknown. I also called attention to the peculiar state of society at the former town, where prostitution, more or less open, is carried on by an overwhelming majority of a swarming coloured female population, and stated my belief that the place would soon become a hot-bed of disease unless some stringent measures were at once taken.

"I have now to record my experience of December 1866. During the week ending the 22nd of December, leave was given for six nights, to each watch alternately, and as the subsequent leave was stopped to each man over-staying his time, this does not represent thirty-six hours to each person. However, during the few remaining days of December and the first days of January 1867, seven cases of infecting chancre and twelve of gonorrhœa came under my notice, and I am confident that much more exists concealed in the ship. As this is a rapidly growing evil, and Port Royal a place where ships are constantly giving leave, the matter is becoming most serious, and I respectfully submit that it should be represented, with the view of having some stringent sanitary measure urged upon the government of Jamaica. There are fewer difficulties in the way now than when I referred to it last, as the colony is now more under the control of the Home Government, the feasibility of action has been demonstrated in England, and as the Port Royal population gains its very existence from the Navy, even

* Surgeon W. H. Lloyd, M.D.

even its supply of water depending on the Admiralty, protection for our men is but little to ask in return."

Barbados also appears to be a hot-bed of venereal disease. The surgeon* of the Constance, in which ship there were seventy-one cases of syphilis and nine of gonorrhœa, says:—

"Venereal disease forms a large per-centage of the days' sickness, as well as of the cases sent to hospital, and taking into consideration the few that were treated on board, the daily loss of service will appear still heavier. The number of admissions during the last seven weeks of 1865 was thirty-seven, giving a daily loss of service of 12·6, or 2·1 per cent.; two only were sent to hospital. In 1866 the admissions were eighty, twenty-three of which were sent to hospital; the daily loss of service from those treated on board being 5·6, or 1· per cent.

"All the cases in 1865 and many of the early cases in 1866 were contracted in England, at Plymouth, which appears to have been, at that time, worse than the worst of the West Indian Colonies. Jamaica has had a bad reputation for several years; the disease, as at Plymouth, being so often followed by secondary or constitutional syphilis; but it did not prove tothis ship so troublesome as at Barbados, where the hard and soft chancre were common, more especially the latter, and both very commonly followed by constitutional symptoms; scaly, ecthymatous, papular, &c. Bubo was not so common as at Jamaica, and on more than one occasion was followed by a secondary eruption.

"I made several efforts while at Barbados to get the Contagious Diseases Act, or a modification of it to suit the peculiar circumstances of the island, passed by the colonial legislature. The advantages were acknowledged both by civil and military authorities, but there were obstacles in the way, especially in the shape of a vote of money for a Lock hospital; promises were made and the subject for the time shelved. From observation in this ship at Barbados, I would say that the chancre contracted there is more commonly soft than hard; but hard or soft it was often of so mild a form that the subject was treated by local means, without being admitted on the sick-list, and not unfrequently the first discovery of the disease was a leprous or papular eruption.

"Towards the end of the year leave was given at the other islands, avoiding Barbados for that purpose as much as possible. This, assisted by the regular examinations a week or eight days after return from leave, helped to check the number and severity of the cases, as well as preventing the spread of the disease to other islands.

"Before concluding my remarks on syphilis, the nature of which and the means of staying its further progress being now under discussion by a commission, I may without presumption state one or two points which my experience on the Home, Mediterranean, and West Indian Stations has led me to adopt:

"*Firstly.*—That the poison of constitutional syphilis may be imbibed

* Surgeon R. W. Beaumont.

North American and West Indian Station.

bibed more than once. I have met several cases, and believe I can recal one in which the disease was contracted three times, and each time followed by secondary symptoms.

"*Secondly.*—That the secondary eruption follows the soft chancre as well as the hard—more commonly, perhaps, the latter; but I have more particularly noticed it following both at Barbados.

"*Thirdly.*—That the secondary eruption is sometimes associated with a suppurating bubo; and

"*Fourthly.*—That the secondary eruption does not in the least depend on mercury or iodide of potassium having been administered for the primary sore, but that it is modified by the state of health and constitution of the patient when he imbibes the poison.

"As regards the treatment.—I have tried blue pill; the compound calomel pill; the bichloride, alone or combined with the iodide of potassium; and the iodide of potassium alone, as well as simply the local treatment; and believe that where a hard or soft chancre does not quickly heal up by astringent lotions, mercury is desirable, and I usually give it in the form of the bichloride, in doses of the one-sixteenth of a grain, gradually increased up to the one-eighth, or even the one-sixth, three times a day, and combined with four or five grains of the iodide of potassium. If the induration is very great and the sore obstinate, I would give the blue pill in five-grain doses two or three times a day, or, if I could ensure its being good, the Plummer's pill, and keep up the action on the gums slightly until the induration was gone; but, as a rule, I would not keep up the mercurial action beyond that time, nor even affect the gums at all, if the sore healed up.

"In the secondary form of the disease I prefer the bichloride, in combination as above, to the blue pill; but I very commonly, in mild cases, use the iodide of potassium by itself, combined with some tonic infusion.

"I should also mention that several of the cases manifested a very long period of incubation(?), even to a couple of months. In most cases I put no confidence in the statement of the patient; but in one or two there were concomitant circumstances which helped me to believe it."

The surgeon* of the Fawn speaks very favourably of Montego Bay as a place for giving leave to ships' companies. He says:—

"The general appearance of the crew improved very much during our stay at Montego Bay. As a station for ships the crews of which have suffered from a too long stay in the Gulf of Mexico, or on the southern parts of the station, and while the exigencies of the service necessitate their remaining in the West Indies, it presents many advantages. Leave can be safely given and rationally enjoyed. All kinds of provisions, vegetables, and fruits are more plentiful and cheaper than at Port Royal. Unlike the latter place, venereal disease is not prevalent among the inhabitants.

"The

* Surgeon Charles Morton.

"The surrounding country is easy of access, and on the high lands, which are close to the town, a very agreeable and healthy climate may be enjoyed. In Port Royal the grog shops and low brothels are the only places the men can resort to, whereas in Montego Bay leave can be enjoyed in a rational manner. Indeed while at the former place leave was never given without injury to the health of the men, at the latter place (*Montego* Bay) the results of leave-giving were always what they ought to be, and are, when given under proper circumstances and conditions,—improved health, vigour, and cheerfulness."

Wounds and Injuries.—Two men sustained fatal fracture of the skull by falling from aloft. A boy who fell from aloft and sustained concussion of the brain with fracture of the right femur and right radius, died six weeks afterwards in Jamaica Hospital; and on post-mortem examination of the body a clot of blood two and a half inches long was found on the brain. There was no trace of fracture of the skull. A man sustained fatal rupture of the liver by falling from aloft; and two men were killed in street riots, one by having his skull fractured by a blow with a brick, and the other by sustaining fracture of the spine.

There were twelve men drowned; seven by falling overboard; two by being capsized in a boat; one by falling into the sea from a wharf; one in attempting to swim on shore; and the manner in which one man was drowned is not stated.

There were fifty-five deaths altogether, thirty-seven being from disease, and eighteen from wounds and injuries of various kinds. The total ratio of mortality was 10·1 per 1,000 of mean force, which is a reduction compared with the preceding year equal to 2·4 per 1,000. The death-rate from disease alone was only 6·8 per 1,000.

Invalided.—Six persons were invalided for the sequelæ of fever; eighteen for diseases of the brain and nervous system; forty-six for diseases of the organs of respiration; fourteen for diseases of the heart and bloodvessels; two for diseases of the alimentary canal; two for disease of the liver; nine for diseases of the genito-urinary organs; seventeen for rheumatism; one for disease of the bones and joints; seven for diseases of the special senses; five for disease of the skin and cellular tissue; nine for diseases not classed; eight for wounds and injuries, and seven for hernia; making a total of 151 persons invalided, which is in the ratio of 27·8 per 1,000 of mean force, being a reduction compared with the preceding year, equal to 4·4 per 1,000.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	531	101·3	5	·9	3	·5
Yellow Fever	11	2·	- -	- -	9	1·6
Intermittent Fever	112	21·3	1	·1	—	—
Apoplexy	2	·3	- -	- -	3	·5
Epilepsy	18	3·4	10	1·8	—	—
Paralysis	12	2·2	3	·5	—	—
Insanity	5	·9	2	·3	—	—
Delirium Tremens	26	4·9	1	·1	4	·7
Neuralgia	18	3·4	—	—	—	—
Vertigo	12	2·2	2	·3	—	—
Insolation	1	·1	—	—	—	—
Tetanus	1	·1	- -	- -	1	·1
Inflammation of the Lungs and Pleura	109	20·8	10	1·8	3	·5
Phthisis and Hæmoptysis	41	7·8	29	5·3	11	2·
Influenza and Catarrh	950	181·2	5	·9	—	—
Cynanche	170	32·4	1	·1	—	—
Asthma	2	·3	1	·1	—	—
Disease of the Heart, Functional and Organic	31	5·9	11	2·	1	·1
Hæmorrhoids	10	1·9	1	·1	—	—
Varix	7	1·3	1	·1	—	—
Aneurism	1	·1	1	·1	—	—
Hæmorrhage (Passive)	1	·1	- -	- -	1	·1
Disease of the Stomach and Bowels	6	1·1	- -	- -	1	·1
Dysentery	11	2·	—	—	—	—
Diarrhœa	467	89·1	2	·3	—	—
Constipation and Colic	80	15·2	—	—	—	—
Disease of the Liver	6	1·1	2	·3	—	—
Jaundice	7	1·3	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	8	1·5	1	·1	—	—
Syphilis, Primary	294	56·1	—	—	—	—
Syphilis, Secondary	68	12·9	5	·9	—	—
Gonorrhœa	81	15·4	—	—	—	—
Orchitis	123	23·4	—	—	—	—
Stricture	11	2·	2	·3	—	—
Incontinence of Urine, &c.	1	·1	1	·1	—	—
Rheumatism	410	78·2	17	3·1	—	—
Gout	2	·3	—	—	—	—
Disease of the Bones and Joints	23	4·3	1	·1	—	—
Inflammation of the Eyes	48	9·1	2	·3	—	—
Amaurosis and Cataract	5	·9	4	·7	—	—
Otitis and Deafness	21	4·	1	·1	—	—
Erysipelas	4	·7	—	—	—	—
Scrofula	5	·9	1	·1	—	—
Bubo (*Symp.*)	74	14·1	1	·1	—	—
Phlegmon and Abscess	1,252	238·9	1	·1	—	—
Ulcer	629	120·	1	·1	—	—
Psora	20	3·8	—	—	—	—
Eruptions, &c.	71	13·5	1	·1	—	—
Dyspepsia and Debility	211	40·2	7	1·2	—	—
Dropsy	3	·5	—	—	—	—
Worms	8	1·5	—	—	—	—
Headache	57	10·8	·2	·3	—	—
Wounds and Injuries	1,342	256·1	8	1·4	6	1·1
Burns and Scalds	78	14·8	—	—	—	—
Hernia	9	1·7	7	1·2	—	—
Drowned	-	-	-	-	12	2·2
TOTAL	7,506	1432·4	151	27·8	55	10·1

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE, and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY,	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	3,997	1,452	5,449	14·9	2·7
Yellow Fever	77	- -	77	·2	—
Intermittent Fever	935	230	1,165	3·1	·5
Epilepsy	214	104	318	·8	·1
Paralysis	277	67	344	·9	·1
Insanity	6	3	9	—	—
Delirium Tremens	106	38	144	·3	—
Neuralgia	130	- -	130	·3	—
Vertigo	47	- -	47	·1	—
Insolation	7	- -	7	—	—
Tetanus	8	- -	8	—	—
Inflammation of the Lungs and Pleura	1,863	523	2,386	6·5	1·1
Phthisis and Hæmoptysis	804	791	1,595	4·3	·7
Influenza and Catarrh	6,091	134	6,225	17·	3·1
Cynanche	1,228	22	1,250	3·4	—
Asthma	5	82	87	·2	—
Disease of the Heart, Functional and Organic	639	206	845	2·3	·4
Hæmorrhoids	214	41	255	·6	·1
Varix	88	- -	88	·2	—
Aneurism	3	114	117	·3	—
Hæmorrhage	13	- -	13	—	—
Disease of the Stomach and Bowels	94	15	109	·2	—
Dysentery	140	20	160	·4	—
Diarrhœa	2,363	326	2,689	7·3	1·3
Constipation and Colic	326	4	330	·9	·1
Disease of the Liver	103	179	282	·7	·1
Jaundice	147	32	179	·4	—

Table, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	120	117	237	·6	·1
Syphilis, Primary	6,045	3,801	9,846	26·9	4·9
Do. Secondary	1,250	662	1,912	5·2	·9
Gonorrhœa	1,301	167	1,468	4·	·7
Orchitis	1,810	216	2,026	5·5	1·
Stricture	163	269	432	1·1	·2
Incontinence of Urine, &c.	5	- -	5	—	—
Rheumatism	5,529	1,246	6,775	18·5	3·4
Gout	35	- -	35	—	—
Disease of the Bones and Joints	275	139	414	1·1	·2
Inflammation of the Eyes	625	313	938	2·5	·4
Amaurosis and Cataract	58	- -	58	·1	—
Otitis and Deafness	199	24	223	·6	·1
Erysipelas	157	- -	157	·4	—
Scrofula	106	- -	106	·2	—
Bubo (*Symp.*)	1,754	242	1,996	5·4	·9
Phlegmon and Abscess	11,687	579	12,266	33·6	6·1
Ulcer	11,758	1,651	13,409	36·7	6·7
Psora	262	- -	262	·7	·1
Eruptions, &c.	673	443	1,116	3·	·5
Dyspepsia and Debility	1,310	832	2,142	5·8	1·
Dropsy	85	11	96	·2	—
Worms	65	- -	65	·1	—
Headache	205	248	453	1·2	·2
Wounds and Injuries	14,074	1,505	15,579	42·6	7·8
Burns and Scalds	992	71	1,063	2·9	·5
Hernia	64	1	65	·1	—
TOTAL	80,532	16,920	97,452	266·9	49·2

TABLE, No. 3.

SHOWING the Number INVALIDED from each Ship employed

CAUSE of INVALIDING.	Aboukir.	Aurora.	Barracouta.	Buzzard.	Cadmus.	Constance.	Cordelia.	Cygnet.	Doris.	Duncan.
Continued and Remittent Fever	–	–	–	–	–	–	–	–	–	–
Intermittent Fever	–	–	–	–	–	–	–	–	–	–
Insanity	–	–	–	–	1	–	–	–	–	–
Epilepsy	–	3	–	–	2	–	–	–	1	1
Delirium Tremens	–	–	–	1	–	–	–	–	–	–
Paralysis	–	–	–	–	–	2	–	–	–	1
Vertigo	–	1	–	–	–	–	–	–	–	–
Inflammation of Lungs and Pleura	–	1	–	–	1	1	–	–	–	5
Phthisis and Hæmoptysis	2	2	–	1	1	3	–	–	2	3
Catarrh	–	–	–	–	–	–	–	–	–	5
Cynanche	–	–	–	–	–	–	–	–	–	*b*1
Asthma	–	–	–	–	–	–	–	–	–	–
Disease of the Heart, Functional and Organic	2	2	–	–	–	3	–	1	–	1
Hæmorrhoids	–	–	–	–	–	–	–	–	–	–
Varix	–	1	–	–	–	–	–	–	–	–
Aneurism	–	–	–	–	–	–	–	–	–	–
Diarrhœa	–	–	–	–	–	–	–	–	–	–
Disease of the Liver	–	–	–	–	–	–	–	–	–	–
Inflammation of the Kidneys and Bladder	–	–	–	–	–	1	–	–	–	–
Syphilis, Secondary	–	1	–	–	2	–	–	–	–	–
Stricture	–	–	–	–	1	–	–	–	–	–
Incontinence of Urine, &c.	1	–	–	–	–	–	–	–	–	–
Rheumatism	–	4	–	–	–	1	–	–	1	5
Diseases of the Bones and Joints	–	–	–	–	–	–	–	–	1	–
Inflammation of the Eyes	–	–	–	–	1	1	–	–	–	–
Amaurosis and Cataract	–	1	–	–	*a*1	–	–	–	–	–
Otitis and Deafness	–	–	–	–	–	–	–	–	–	1
Scrofula	–	–	–	–	–	–	–	–	–	1
Abscess	–	–	–	–	–	–	–	–	1	–
Ulcer	–	–	–	–	–	–	–	–	–	–
Eruptions, &c.	–	–	–	–	–	–	–	–	–	–
Dyspepsia and Debility	–	1	1	1	–	1	–	–	2	–
Headache, &c.	–	–	–	–	–	–	–	1	–	–
Wounds	–	–	–	–	–	–	1	1	–	2
Hernia	–	–	1	–	2	–	–	–	1	1
Bubo (*Symp.*)	–	–	–	–	–	1	–	–	–	–
TOTAL	5	17	2	3	12	14	1	3	9	27

a Hemeralopia.

TABLE, No. 3.

on the NORTH AMERICAN AND WEST INDIAN STATION.

Favorite.	Fawn.	Gannet.	Gunboats.	Jason.	Lily.	Niger.	Pylades.	Royalist.	Sphinx.	Steady.	Terror.	Wolverene.	TOTAL.
–	–	–	–	–	–	–	–	2	2	1	–	–	5
–	–	–	–	–	–	–	–	–	–	–	–	1	1
–	–	–	–	–	–	–	–	–	1	–	–	–	2
–	–	–	–	–	–	–	–	1	–	–	–	2	10
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	1	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	1	–	1	–	–	–	10
1	2	1	1	4	1	–	–	1	–	–	1	3	29
–	–	–	–	–	–	–	–	–	–	–	–	–	5
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	1	–	–	–	1
–	–	–	–	2	–	–	–	–	–	–	–	–	11
–	–	–	–	–	–	–	–	–	–	1	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	1	–	–	–	–	–	–	–	–	1
–	–	1	–	–	–	–	1	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	1	1	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	1	–	–	–	–	–	1	5
–	–	–	–	–	–	–	–	–	–	1	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	1	1	–	–	–	–	–	–	3	–	–	1	17
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	*a*2	–	–	–	–	–	–	–	–	–	–	4
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	1	1
–	–	–	–	1	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	1	–	7
–	–	–	–	–	1	–	–	–	–	–	–	–	2
–	–	–	–	–	–	1	–	–	1	1	1	–	8
–	–	–	1	–	–	–	–	–	1	–	–	–	7
–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	3	5	2	9	2	2	2	4	10	5	4	9	151

b Aphonia.

TABLE, No. 4. - - - - - - - -

SHOWING the Number of DEATHS in each Ship employed - - -

CAUSE OF DEATH.	Aboukir.	Aurora.	Barracouta.	Buzzard.	Cadmus.	Constance.	Cordelia.
Continued and Remittent Fever -	1	–	–	–	–	–	–
Yellow Fever - - - - -	1	–	–	–	5	–	–
Apoplexy - - - - - -	–	–	1	–	–	–	–
Delirium Tremens - - -	2	–	–	–	–	–	–
Tetanus - - - - - -	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura - - - - -	2	–	–	–	–	–	–
Phthisis - - - - - -	1	2	–	–	–	1	–
Disease of the Heart - - -	–	–	–	–	–	–	–
Hæmorrhage (Passive) - -	–	–	–	–	–	–	–
Hæmatemesis - - - - -	–	–	–	–	–	–	1
Wounds and Injuries - - -	–	–	–	–	1	1	–
Drowned - - - - - -	–	4	–	2	–	1	–
TOTAL - - -	7	6	1	2	6	3	1

- - - - - - - - - TABLE, No. 4.

- - - on the NORTH AMERICAN and WEST INDIAN STATION.

Cygnet.	Doris.	Duncan.	Gannet.	Gunboats.	Jason.	Pylades.	Rosario.	Royalist.	Terror.	TOTAL.
–	–	–	–	2	–	–	–	–	–	3
–	–	–	–	3	–	–	–	–	–	9
–	–	–	–	1	–	–	–	–	1	3
–	–	–	–	–	–	1	–	–	1	4
1	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	1	3
–	–	4	–	–	1	1	–	–	1	11
–	–	–	–	–	–	–	–	1	–	1
–	–	–	–	–	–	1	–	–	–	1
–	–	–	–	–	–	–	–	–	–	1
–	1	2	–	–	–	–	1	–	–	6
–	1	1	1	1	–	–	1	–	–	12
1	2	7	1	7	1	3	2	1	4	55

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Cases; Daily, in each Ship; and the

C. Commissioned. P. O. Paid off.

Rate, &c.	NAME OF SHIP.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.
Iron-clad	Favourite C.	Sheerness	8 Feb. 1866	10	2,094	S. 400
Second Rate	Duncan	Portsmouth	7 Jan. 1864	81	3,727	S. 800
Fourth Rate	Aurora	Devonport	18 Nov. 1863	35	2,558	S. 400
	Constance	Devonport	13 June 1865	35	3,213	S. 500
	Doris C.	Devonport	5 Feb. 1866	24	2,483	S. 800
Sixth Rate	Cadmus	Chatham	15 Dec. 1864	21	1,466	S. 400
	Jason C.	Devonport	7 May 1866	17	1,711	S. 400
	Niger	Woolwich	3 Feb. 1865	13	1,072	S. 350
	Pylades P. O.	Chatham	4 Dec. 1862	21	1,278	S. 350
	Wolverene	Woolwich	8 May 1864	21	1,703	S. 400
Sloop	Barracouta C.	Sheerness	18 Mar. 1866	6	1,053	P. 300
	Buzzard P. O.	Devonport	27 Jan. 1863	6	980	P. 300
	Cordelia	Devonport	23 June 1864	11	579	S. 150
	Fawn	Sheerness	20 June 1864	17	751	S. 100
	Gannet	Devonport	3 July 1865	3	579	S. 150
	Rosario P. O.	Sheerness	23 June 1862	11	673	S. 150
	Royalist	Devonport	5 Nov. 1863	11	669	S. 150
	Sphinx	Devonport	2 May 1865	6	1,061	P. 500
Gun Vessel	Cygnet	Halifax	19 Oct. 1864	5	428	S. 80
	Lily P. O.	Sheerness	11 Nov. 1862	4	702	S. 200
	Nimble	Halifax	1 Jan. 1865	5	428	S. 80
	Steady D.	Halifax	26 Oct. 1864	5	431	S. 80
Receiving Ship	Aboukir	Jamaica	26 Aug. 1862	86	3,091	S. 400
Floating Battery and Dockyard	Terror	Bermuda	1 Jan. 1865	16	1,971	S. 200

- - - - - - - - TABLE, No. 5.

the Total Number of Days' Sickness on Board; the Average Number of Men Sick Number discharged to Hospital.

D. Returns defective.

Period.	Average Complement.	Average Complement corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
1 July to 23 Dec.	265	135	223	2,875	7·8	57·7	11
Year - -	1,000	1,000	842	9,340	25·5	25·5	11
Year - -	435	435	846	8,802	24·1	55·4	24
Year - -	540	540	762	9,650	26·4	48·8	58
1 July to 31 Dec.	490	245	282	3,783	10·3	42·	22
Year - -	275	275	382	4,972	13·6	49·4	52
1 July to 31 Dec.	260	130	221	1,697	4·6	35·3	11
Year - -	180	180	304	4,372	11·9	66·1	16
1 Jan. to 7 Nov.	240	205	349	3,885	10·6	51·7	18
Year - -	275	275	469	5,156	14·1	51·2	4
1 July to 31 Dec.	180	90	131	1,447	3·9	43·3	3
1 Jan. to 26 Nov.	170	155	301	2,838	7·7	49·6	8
Year - -	130	130	192	1,447	3·9	30·	7
Year - -	180	180	224	1,895	5·1	28·3	10
Year - -	125	125	158	1,547	4·2	33·6	18
1 Jan. to 13 Oct.	130	100	187	1,390	3·8	38·	5
Year - -	135	135	160	1,521	4·1	30·3	11
Year - -	175	175	414	5,069	13·8	78·8	25
Year - -	80	80	169	2,071	5·6	70·	20
1 Jan. to 7 Nov. -	105	90	129	1,350	3·6	40·	14
Year - -	65	65	95	1,014	2·7	41·5	10
1 Jan. to 30 Sept.	60	45	118	720	1 9	42·2	6
Year - -	185	185	278	2,407	6·5	35·1	60
Year - -	265	265	270	1,481	4·	15·	33

TABLE, No. 6. - - - - - - - -

SHOWING the Number of CASES of all DISEASES and INJURIES in each - - - -

DISEASE OR INJURY.	Aboukir.	Aurora.	Barracouta.	Buzzard.	Cadmus.	Constance.	Cordelia.	Cygnet.	Doris.	Duncan.	Favourite.
Continued and Remittent Fever -	78	17	6	15	26	39	8	36	22	84	-
Yellow Fever - - - -	-	-	-	-	11	-	-	-	-	-	-
Intermittent Fever - - -	6	4	-	-	3	3	2	47	-	-	3
Apoplexy - - - - - -	-	-	1	-	-	-	-	-	-	-	-
Epilepsy - - - - - -	-	4	-	-	3	2	-	-	-	1	2
Paralysis - - - - - -	-	-	-	-	-	5	-	-	-	4	1
Insanity - - - - - -	-	-	-	-	2	1	-	-	-	1	-
Delirium Tremens - - -	3	-	-	2	-	-	-	-	-	12	-
Neuralgia - - - - - -	-	5	-	1	-	-	1	-	1	2	2
Vertigo - - - - - -	-	2	1	3	-	-	-	-	-	-	-
Insolation - - - - - -	-	-	-	1	-	-	-	-	-	-	-
Tetanus - - - - - -	-	-	-	-	-	-	-	1	-	-	-
Inflammation of the Lungs and Pleura - - - - -	3	43	-	4	6	8	-	-	1	26	6
Phthisis and Hæmoptysis - -	3	7	-	1	-	5	1	-	2	2	2
Cynanche - - - - -	3	22	-	3	6	19	8	1	1	24	5
Influenza and Catarrh - -	13	116	-	16	55	33	41	8	31	133	32
Asthma - - - - - -	1	-	-	-	-	-	-	-	-	-	-
Disease of the Heart, Functional and Organic - - - -	4	2	-	2	4	7	-	2	-	1	1
Aneurism - - - - - -	-	-	-	-	-	-	-	-	-	-	-
Hæmorrhoids - - - - -	1	3	-	2	-	-	-	-	1	-	-
Varix - - - - - -	-	1	-	-	1	2	-	-	-	3	-
Hæmorrhage (Passive) - -	-	-	-	-	-	-	-	-	-	-	-
Inflammation of the Stomach and Bowels - - - - -	-	1	-	1	1	-	1	-	-	-	-
Dysentery - - - - - -	-	1	-	-	-	1	1	-	-	-	-
Diarrhœa - - - - - -	11	90	2	27	7	24	8	7	11	9	11
Constipation and Colic - -	1	3	2	2	2	5	4	1	-	9	4
Inflammation of the Liver - -	-	2	-	-	-	-	-	-	2	-	-
Jaundice - - - - - -	-	2	-	-	-	1	-	-	-	2	-
Inflammation of the Bladder and Kidneys - - - - -	-	-	-	-	-	1	2	-	-	2	-
Syphilis, Primary - - -	15	35	6	7	24	71	3	5	5	33	6
Do. Secondary - - -	3	14	1	-	1	-	-	-	-	-	1
Gonorrhœa - - - - -	4	11	1	2	6	9	2	2	3	3	1
Orchitis - - - - - -	4	12	2	7	9	11	2	3	2	33	4
Stricture of the Urethra - -	2	-	-	1	2	3	-	1	-	-	-
Incontinence of Urine, &c. - -	-	1	-	-	-	-	-	-	-	-	-
Rheumatism - - - -	15	38	5	30	7	18	9	7	17	55	25
Gout - - - - - -	-	-	-	-	-	-	-	-	-	-	-
Disease of the Bones and Joints	2	-	-	2	3	-	-	-	3	2	-
Inflammation of the Eyes - -	1	8	-	2	5	6	2	4	1	1	3
Amaurosis and Cataract - -	-	2	-	-	1	-	-	-	-	-	-
Otitis and Deafness - - -	1	2	-	2	-	3	1	2	-	3	1
Erysipelas - - - - -	-	-	-	-	-	1	-	-	-	1	-
Scrofula - - - - - -	-	-	-	-	-	1	-	-	-	2	-
Bubo (*Symp.*) - - - -	5	2	-	6	1	8	-	3	6	3	-
Phlegmon and Abscess - -	25	106	37	39	61	193	35	2	62	161	44
Ulcer - - - - - -	17	53	32	38	55	92	10	11	42	31	8
Psora - - - - - -	-	1	-	-	-	-	-	-	-	4	4
Eruptions, &c. - - - -	-	a 8	-	3	5	16	2	-	-	1	1
Dyspepsia and Debility - -	10	6	6	19	17	6	6	3	19	1	7
Headache, &c. - - - -	-	37	-	5	3	-	-	-	-	-	2
Dropsy - - - - - -	-	1	-	-	-	-	-	-	-	-	-
Worms - - - - - -	2	-	-	-	1	2	-	2	-	-	-
Wounds and Injuries - -	43	176	24	58	50	160	41	21	46	176	41
Burns and Scalds - - -	1	8	5	-	2	6	2	-	3	16	2
Hernia - - - - - -	1	-	-	-	2	-	-	-	1	2	1
TOTAL - - -	278	846	131	301	382	762	192	169	282	842	223

a 3 Frost-bite.

TABLE, No. 6.

Ship employed on the NORTH AMERICAN and WEST INDIAN STATION.

Fawn.	Gannet.	Jason.	Lily.	Niger.	Nimble.	Pylades.	Rosario.	Royalist.	Sphinx.	Steady.	Terror.	Wolverene.	TOTAL.
2	4	24	5	15	22	4	9	9	48	33	15	10	531
-	-	-	-	-	-	-	-	-	-	-	-	-	11
-	-	4	-	3	4	4	2	4	2	5	-	16	112
-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	1	-	-	-	-	-	-	1	1	-	1	-	2
-	-	-	-	-	-	2	-	-	-	-	1	1	18
-	-	-	-	1	-	-	-	-	1	-	-	-	12
-	-	-	-	-	-	-	-	-	-	-	-	-	5
-	1	-	2	2	-	3	-	-	-	-	-	1	26
-	-	-	-	-	-	-	-	-	1	3	1	1	18
-	-	1	-	1	2	-	-	-	2	-	-	-	12
-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-	1
1	4	3	1	4	-	11	1	4	3	-	3	7	109
1	4	3	1	-	-	-	-	2	-	-	3	4	41
10	2	3	3	8	-	22	5	-	7	-	3	15	170
67	18	15	12	50	1	49	46	36	39	16	37	56	950
-	-	-	-	-	-	-	-	-	-	-	-	1	2
-	-	3	-	2	-	-	-	1	-	-	-	2	31
-	-	1	-	-	-	-	-	-	-	-	-	-	1
1	-	-	-	-	-	-	-	-	-	1	-	1	10
-	-	-	-	-	-	-	-	-	-	-	-	-	7
-	-	-	-	-	-	1	-	-	-	-	-	-	1
-	-	-	1	-	-	1	-	-	-	-	-	-	6
-	3	-	-	-	2	-	-	-	-	-	2	1	11
14	14	24	5	23	-	23	26	10	54	11	37	19	467
3	2	1	7	7	1	7	-	1	7	3	2	6	80
-	-	-	-	-	-	-	-	-	-	1	1	-	6
-	-	-	-	-	-	2	-	-	-	-	-	-	7
-	-	-	-	-	2	-	-	1	-	-	-	-	8
3	4	6	5	18	3	9	9	3	12	1	4	7	294
9	8	5	-	7	-	4	-	1	-	-	1	13	68
4	2	2	-	4	-	5	2	1	6	1	4	8	81
4	2	-	2	2	-	4	1	1	4	1	1	12	123
1	-	-	-	-	1	-	-	-	-	-	-	-	11
-	-	-	-	-	-	-	-	-	-	-	-	-	1
5	11	6	4	6	4	36	7	17	27	14	8	39	410
-	-	-	2	3	-	-	-	-	4	-	-	2	2
-	-	-	-	-	-	-	-	-	-	-	-	2	23
-	1	-	1	1	-	5	5	-	-	-	1	1	48
-	2	1	-	-	1	-	-	-	1	-	1	-	5
-	-	-	-	-	-	-	-	-	-	-	-	2	21
-	-	1	-	-	1	-	-	-	-	-	-	-	4
-	-	-	1	-	-	-	-	-	-	-	-	1	5
1	-	2	2	3	5	6	1	4	8	2	2	4	74
20	48	51	16	52	17	34	22	29	72	6	32	88	1,252
29	3	12	13	20	10	14	27	2	38	4	26	42	629
-	-	-	-	-	-	-	-	-	-	-	11	-	20
3	1	-	1	2	-	512	-	-	6	1	4	5	71
5	6	13	15	3	-	-	1	8	25	-	14	20	211
-	-	-	1	-	-	1	-	-	4	-	-	4	57
-	-	-	-	-	1	-	-	-	1	-	-	-	3
-	-	-	-	-	-	-	-	-	-	1	-	-	8
35	19	38	26	64	14	80	23	24	39	13	53	75	1,342
5	-	2	3	3	4	10	-	1	-	1	1	3	78
-	-	-	-	-	-	-	-	-	1	-	1	-	9
224	158	221	129	304	95	349	187	160	414	118	270	469	7,806

† 6 Frost-bite.

SOUTH EAST COAST OF AMERICA.

South East Coast of America Station.

NINE vessels were employed on this station during the year 1866, of which one was of the fourth-rate; there was one sloop; two steam vessels; four gunboats; and one receiving ship permanently stationed at Rio de Janeiro. Besides the force comprised in these vessels, there was a small detachment of marines at the Falkland Islands. The mean force corrected for time was 1,200, and the total number of cases under treatment during the year 1827, which is in the ratio of 1522·5 per 1,000 of mean force, being a reduction as compared with the preceding year equal to 89·8 per 1,000. The returns from each of the vessels are for the whole year.

The daily loss of service from fevers, including the exanthemata, was in the ratio of 2·3 per 1,000 of mean force; from diseases of the brain and nervous system, ·1; of the organs of respiration, 4·2; of the heart and blood-vessels, ·5; of the alimentary canal, 2·9; of the liver, ·4; of the genito-urinary organs, chiefly venereal, 7·2; from rheumatism, 2·; diseases of the bones and joints, ·1; of the special senses, ·5; of the skin and cellular tissue, 13·7; from diseases not classed, 2·1; and from wounds and injuries of various kinds, 8·5. The total number of men sick daily was on an average fifty-nine, which is in the ratio of 49· per 1,000 of mean force, being a slight reduction as compared with the preceding year.

Fevers.—There were forty-eight cases of fever of a continued or remittent type, nine cases of ague, twenty-four of scarlatina, and one of varicella under treatment during the year; and of these each case of primary fever was on an average over eleven days under treatment; each case of ague between seventeen and eighteeen days; each case of scarlatina about seventeen days; and the case of varicella, eighteen days. One case of primary fever was invalided, and one proved fatal.

Continued

SOUTH EAST COAST OF AMERICA STATION

To face p. 142

Continued and Remittent Fever.—There were eight cases of primary fever in the Egmont, of which six are classed as febricula, one as continued, and one as remittent. Each case of febricula was on an average between six and seven days under treatment; the case of continued fever, thirty-six days, and the case of remittent fever, five days. The only point of a noteworthy character in connection with these cases is, that in the continued case the type appears to have been enteric, but without the specific eruption. Diarrhœa and abdominal tenderness were present, and the surgeon* considers that the latter symptom was due to sub-acute specific inflammation of the glands of the small intestine, occasioned by the fever poison.

In the Narcissus there were eight cases of primary fever, two being classed as continued, one as typhoid, and five as febricula. The typhoid case proved fatal. It occurred in the person of a young seaman of a delicate habit of body, who had been employed for some time before being taken ill as a lower deck sweeper. Twenty-five days before being placed on the sick-list he had been on leave at Rio de Janeiro, and had slept on shore. The attack was characterised by great debility, abdominal tenderness, diarrhœa, and on the 8th day the specific rose-coloured eruption. The lungs also became implicated on the eighth day, the symptoms being cough, with tenacious expectoration, and pain on the right side. On the twelfth day all his symptoms became aggravated, the fever ran higher, the pulse was 106, he had passed a restless night with low muttering delirium, and he was much weaker. Both lungs were affected, and the affection was increasing, the breathing was hurried, and on the right side there was bronchophony. The abdomen was tympanitic. He died early in the morning of the seventh day. The following report of the autopsy is by the surgeon† of the ship, from whose extended report of the case the foregoing abridgment is made:—

"The post-mortem examination showed no great emaciation of the body. There was no effusion into the cavity of the peritoneum, nor perforation of the intestines. The whole of the mucous membrane of the ileum was turgid and congested, but more markedly so at the lower fourth, where were found several elliptical ulcerations of the patches of peyers glands. Some of the mesenteric glands were also enlarged. There was no effusion into the cavity of the chest;

* Surgeon J. C. Ingles. † Surgeon F. W. Blake.

South East Coast of America Station.

chest; soft recent adhesions were found in the right pleura; on both sides the lungs were congested, mostly at the posterior aspect and apex. The disease had advanced to considerable consolidation of the lower half of the right lung. The tissue in both was at intervals quite friable and soft, and the bronchial tubes loaded with mucus."

The average duration of each case of continued fever in this ship was fourteen days, and of each case of so-called febricula about three weeks. This, however, is so much beyond the ordinary duration of febricula, that in all probability the fever was of the remittent type, probably of an obscure character. It is true that Murchison in his work* on continued fevers is inclined to think that there may be a form of febricula in which the duration of the symptoms might be prolonged to two or three weeks, and for which variety he proposes the designation asthenic simple fever; but he states at the same time that it is to be remembered that enteric fever occasionally assumes characters of a similar nature. Unfortunately no details in connection with the cases of febricula on board the Narcissus are given, but it is at least worthy of notice that four of them occurred at the same time with the case of enteric fever which proved fatal, and that the average duration of each of them was twenty-five days.

There were ten cases of primary fever in the Sharpshooter, of which seven are classed as febricula, and three as remittent. The average duration of each case of remittent fever was twenty-six days; and of each case of febricula between two and three days. One of the most tedious of the former cases occurred in the person of a boy who was placed on the sick-list when the vessel was at Rio de Janeiro, but could not be transferred to the hospital ship there, as scarlatina was prevailing in the hospital. As it was thought probable that he might improve on getting to sea, he went with the ship which was ordered to Pernambuco. Unhappily, heavy weather was encountered which necessitated his being kept in a hot and close lower deck. This aggravated all his symptoms, and he became so much worse that it was necessary to leave him in the English hospital at Pernambuco, until the return of the vessel from the northward, when he was taken on board again. He had become much emaciated; the spleen was enlarged

* Treatise on the Continued Fevers of Great Britain, by Charles Murchison, M.D., p. 601.

enlarged, the appetite defective, and he had daily headache with irregular periodic febrile accessions. He was ultimately discharged to the hospital ship at Rio, from whence he was subsequently invalided. South East Coast of America Station.

There were fifteen cases of primary fever in the Spiteful, all of which are classed as febricula. The average duration of each case was between four and five days. Thirteen of the cases were placed on the sick-list in the Lady quarter of the year, and are stated to have been due to insolation. The symptoms were intense headache, a dry and white tongue, *full* pulse, hot and dry skin, and great general malaise. Beyond a strong purgative, the application of cold to the head, and low diet, they seem to have required but little treatment. In some cases, after the feverish symptoms had subsided, quinine was given with advantage.

In the Triton there were seven cases of primary fever. They are classed as continued, and the average duration of each case was about eight days. They are said to have been of a mild character, and dependent on dietetic errors. They were treated by emetics and purgatives, and during convalescence, vegetable tonics were given.

Intermittent Fever.—Nine cases of ague were under treatment during the year; five in the Linnet, and four in the Narcissus. In the Linnet the disease appears to have been of an exceedingly obstinate character, the average duration of each case being over twenty-two days. With reference to them, the medical officer* makes the following remarks:—

"Five cases of intermittent fever, or, correctly speaking, four cases, as the fifth was a case of relapse after the man had been at duty over five weeks, occurred. On the 23rd of April the first case was observed in the person of the ward-room steward, six days after we arrived at Buenos Ayres from Monte Video. The second case, that of an officer, occurred on the 1st of May, eight days after the first, while the ship was still in the harbour of Buenos Ayres. After an interval of ten days a leading stoker took the disease. We were then in Monte Video, having returned a week before from Buenos Ayres. No fresh instance of the disease occurred until eleven weeks afterwards. On the 31st of July, eight days after arriving at Buenos Ayres on a cruise from Monte Video, an able seaman became affected. In this latter case there occurred a relapse of

* Assistant Surgeon Alexander M'Donald, M.D.

South East Coast of America Station.

of the disease, five weeks after the man had been discharged to duty, cured of his primary attack.

" In all these cases, excepting that of the officer, the fever was of the tertian form, and not severe. In the officer's case the attacks were very irregular, both in their onset and duration, and he had the complication of great enlargement of the spleen, apparently of old standing, as it bore no relation to the severity or number of his attacks. A very slight enlargement of the spleen took place in the case of the able seaman. The other two were quite free from this sign.

" In the ward-room steward and the seaman the present is the first occasion on which they had intermittent fever. The stoker had the disease once before, seven years ago, at which time he was living at Sheerness. The officer had had the disease very severely two years before the attack referred to above. He was then on the West Coast of Africa Station, and it was found necessary to invalid him. In all the cases, excepting that of the officer, the attacks of fever anticipated each other. The ward-room steward had three repetitions, occurring on the following dates and hours. First attack on the 23rd of April, at 7 a. m.; second attack on the 25th of April, at 7 a. m.; third attack on the 27th of April, at 6. 30 a. m. The stoker had two repetitions of the fever, one occurring at noon on the 11th of May, and the second at 10 a. m. on the 13th of May. The seaman had three repetitions of the fever. The first occurred on the 1st of August, at 7 a. m.; the second on the 3rd, at 5. 30 a. m.; and the third on the 5th of August, at 2. 30 a. m. It is remarkable that when this latter patient suffered a relapse the type of his fever changed from a tertian to that of an irregular quotidian. His first attack took place in the early morning of the 3rd of October. At 3 p. m. on the 4th he had his second and last repetition. The cause of this visitation is quite unknown. The men who took the disease were not exposed to those agencies which are generally considered to give rise to it; and there was nothing either in the duties they had to perform or in their diet or treatment on board by which they should have suffered more than the others. They were not exhausted with over-work, as for the most part they were doing the ordinary duties of a man-of-war in harbour; the only sea cruising the ship was employed on for some time previous to, and at the time when the cases of ague were observed, consisted in making passages to and fro between Monte Video and Buenos Ayres. No leave to stay out of the ship at night had been granted to any of the crew for a month before the first case was seen. It may be observed here that intermittent fever is a very rare disease in these countries.

" The water used when the ship was at Monte Video was obtained from a brook on the north shore of the bay, and, although never very good, was not at this time worse than usual. It was used by all the ship's company, and by the ships' companies of all the English men-of-war in harbour. At Buenos Ayres the water used was taken from alongside. It is muddy, but soon settles and becomes only tolerably clear. Three of the cases occurred at Buenos Ayres whilst we were using that water.

" As to the state of the ship, ever since she has been in commission there

there has been very little leakage, so that the bilges have always been dry and sweet, and no noxious exhalations could have arisen from this cause. The fore-bilge was cleared out a month before the first case was observed. The engine-room bilges are always kept clean. The after-bilges, which are under the ward-room and commander's cabin, are separated from the others by a partition.

"As to treatment. The remedy employed in all the cases was quinine. The liquor arsenicalis was employed latterly in the case of the officer, and in that of the seaman when he was recovering from his relapse."

The cases of ague in the Narcissus occurred in men who had previously suffered from the disease in China.

Scarlatina.—In the month of June, scarlatina was epidemic in the Egmont, the receiving ship at Rio de Janeiro. The surgeon says:—

"On the 11th, a boy was placed on the sick-list for catarrhal symptoms; and on the 13th, three men were affected in the same way. On the 14th these cases showed the characteristics of scarlatina, severe headache, pain in the back, suffusion of the eyes, nausea, tongue coated, sore throat with a peculiar scarlet blush of the fauces, and the scarlet eruption on the face, neck and chest. On the 14th, there were four fresh cases; on the 15th, six; on the 16th, three; none on the 17th; on the 18th, five; none on the 19th; on the 20th one; and the last case occurred on the 21st. The disease was very mild in character, and presented many of the symptoms of measles as well as scarlatina. In each case the symptoms were precisely alike. In the case of the boy who was first attacked, the eruption and sore throat did not appear until the fourth day. When put on the sick-list, he said he had a bad cold, that he had been sneezing frequently, and that "his head was stuffed." This case, at first, looked very like measles. In a few cases the eruption had made its appearance before the patients presented themselves, but in the majority it appeared on the second day. Every patient suffered from cough without expectoration, which was no doubt owing to the irritation of the rash on the fauces. In no case was the rash very vivid, and in most it was merely a faint blush, which would not have been noticed, had not scarlatina been suspected, or pressure made on the skin with the hand, in which case the marks of the fingers were plainly visible. In all the premonitory symptoms were very decided; pyrexia especially was great, but lasted only a short time, from twelve to twenty-four hours. Desquamation was not observed in all the cases, but when it was noticed, it commenced about the fourth day after the appearance of the eruption. The sore throat did not last more than two, or at most, three days. In three cases only was there any sequela. A boy and a ward-room officer's servant suffered from rheumatic swellings of the keee-joints, and one boy had slight œdema of the lower extremities. The two most severe cases occurred on the youngest, and oldest but one, of those attacked; a boy of

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seventeen, and a man aged thirty-five. The ages of those attacked were, six of seventeen years; one, of eighteen; three, of twenty; four, of twenty-one; two, of twenty-two; three, of twenty-four; two, of twenty-five; one, of twenty-six; one, of thirty-five; and one of thirty-six. On the 22nd of June, the Narcissus (flag-ship) arrived, and the commander-in-chief ordered that there should be no communication between the Egmont and the other ships of the squadron until twenty-five days after the last case was put on the list. The disease did not spread to any of the English ships of war, nor, as far as I can ascertain, to any of the foreign ships. The last case was put on the sick-list on the 21st of June.

Elsewhere the surgeon says:—

"I have been unable to discover the origin of this attack, as I cannot hear of there being any scarlatina on shore or among the shipping."

The assistant surgeon*, however, remarks:—

"I have no doubt that this contagious disease was contracted on shore by the boy first attacked, and brought on board with him, the disease being at the time prevalent amongst the lower order of inhabitants, and to a large extent amongst the children of the free black population of Rio de Janeiro; and although the type of the disease on shore was severe "scarlatina gravior," as I found out from personal observation and inquiry, yet in all our cases there was not one which gave any uneasiness, all being of a mild form, the "scarlatina mitior" of recent writers. We had no fatal cases, the average duration of the disease, taking all the cases, being seventeen days, and the only distressing sequel being great prostration, weakness, and loss of flesh, which rapidly gave way to the administration of a nutritious diet, and from four to eight ounces of port wine daily. In no case had we any tertiary action of the poison, and in those cases where sore throat was present, the tonsils only were affected, and that in a slight degree, merely swelling, and a crimson red appearance of the mucous membrane, rapidly improving by the use of an astringent gargle, and a flannel roller round the neck."

Varicella.—A mild attack of this form of eruptive fever appeared in the Triton, in the person of an officer. He was at once discharged to hospital to prevent the spread of the disease, and this is all the information that is given in connection with the case.

Diseases of the Brain and Nervous System.—There is a reduction in the ratio of cases coming under this head as compared with the preceding year equal to 7·7 per 1,000 of mean force.

* Assistant Surgeon R. B. O'Toole.

force. There is also a great reduction in the ratio of invaliding, and there was no mortality. The reduction in the ratio of cases is altogether referable to the comparatively small number of cases of epilepsy and neuralgia that were entered on the sick-list. South East Coast of America Station.

Two cases of epilepsy were under treatment, one in the person of a seaman of the Narcissus, whose system had been exceedingly reduced by a severe attack of diphtheria. He had, however, been subject to epileptic seizures previous to the diphtheritic attack; he was ultimately invalided. The other epileptic subject was a marine of the Sharpshooter, a man of most intemperate habits, to which doubtless the disease was attributable.

Diseases of the Organs of Respiration.—There is a slight increase in the ratio of cases coming under this head as compared with the preceding year, but the invaliding and death rates are less. Four men were invalided for phthisis, one for cynanche, and one for asthma. The case of cynanche occurred in the person of a marine of the Narcissus, who had recently joined that ship from the detachment of marines serving at the Falkland Islands, where he had suffered from frequent attacks of the same disease, which is said to be prevalent there. In the present instance, however, there seems to be little doubt that it was connected with a syphilitic taint, and although the acute symptoms were subdued by the treatment to which he was subjected, the tonsils and uvula continued so much enlarged and indurated, that he could not comfortably swallow liquid food, so that it was thought advisable, considering how much he had suffered from a constantly diseased state of the throat for two years previously, that he should be invalided and sent to England, which was accordingly done.

Seventy-seven cases of catarrh were under treatment in the Narcissus during the year, a large number of which occurred in an epidemic form in the month of July when the vessel was lying in the harbour of Rio de Janeiro. The surgeon of the ship says:—

"On the 10th of this month (July) an epidemic of catarrh visited the ship, the immediate cause of which appeared to be a peculiar state of the atmosphere, which was very clear and bright, allowing the rays of the sun a greater intensity than usual during the day; the same cause favoured radiation at night, with a great deposition of dew, causing the morning air to be very cold and damp. The wind blew from

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from inland, and continued in that direction during the day. Thirty-four men were affected sufficiently to excuse them from duty, and thirty others were treated for a milder form of the disease. They all had the usual symptoms of catarrh, with sore throat and slight fever, and most of them complained of general pains about the body. The treatment averaged three days, and consisted of diaphoretics and pectoral mixture. One man only, a stoker, had any continuance of feverish symptoms, and his attack more resembled influenza, and left him debilitated. The epidemic only lasted six days, during which time, also, it was prevalent on shore."

There were forty-eight cases of catarrh in the Spiteful, thirty-seven of which occurred during the Michaelmas quarter of the year, when the vessel was stationed at Monte Video. With reference to them the surgeon* says:—

"About the end of August and beginning of September an epidemic of catarrh attacked Monte Video, and in consequence the sick-list rose on the 1st of September to twenty-two, besides there being a great many not on the list, but requiring treatment. The cause of this was probably the great and sudden changes of temperature, and the foggy weather; the thermometer at noon stood about 60°, and at sunset about 40° in the shade, and not a day passed without rain or mist. The symptoms were considerable pyrexia and frontal headache, inflammation of the tonsils in every case, thus accounting for the severity of the febrile symptoms; in only two instances did the inflammation attack the smaller bronchi, it being chiefly confined to the schneiderian, and mucous membranes lining the fauces and upper part of the larynx and pharynx. A saline purgative, and saline diaphoretics were usually prescribed, and an astringent or stimulating gargle was used, varying with the progress of the case. The diet was light and unstimulating, with demulcent drinks *ad libitum*. In all the uncomplicated cases, convalescence was complete on the subsidence of the feverish symptoms, differing in this, as in most of its symptoms, from the long and tedious convalescence of influenza. The average duration of each case was seven days. Towards the end of September, the weather became more settled, and all the catarrh disappeared."

Diseases of the Heart and Bloodvessels.—There was a considerable increase in the ratio of cases coming under this head as compared with the preceding year, and also in the ratio of invaliding. The death-rate was almost precisely the same. Of fifteen cases of functional or organic disease of the heart, four were invalided, and one died. The fatal case occurred in the person of a petty officer of the Spider who was placed on the sick-list on the 30th of July, complaining of

* Surgeon D. Hilston.

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of oppression and tightness across the chest, and a troublesome cough, accompanied with but little expectoration. There was no dyspnœa. Slight mucous râles were heard along the course of the larger bronchial tubes; the respiratory murmur was normal; there was no dulness on percussion. He stated that he had sufferred more or less from cough for eight or nine months. Under counter-irritation and the use of expectorants, the cough was relieved, but the sense of oppression and tightness across the chest remained. Subsequently he complained of dyspnœa and palpitation on the least exertion, with acute pain below the left nipple. On physical examination of the region of the heart, a bellows murmur was heard, more distinct at the base, and obscuring in some degree both heart sounds. Under these circumstances he was sent to the civil hospital at Monte Video, where he was invalided and discharged to the Spiteful for a passage to England. On board that vessel all his symptoms became aggravated. He had severe pain running down the left arm, preventing his sleeping at night, and the cough became exceedingly troublesome, and little or not at all influenced by any remedies directed against it. As he was suffering much from the noise and want of accommodation in the ship, it was thought advisable, on arriving at Rio de Janeiro, to transfer him to the Egmont. The concluding report of his case is thus given by the surgeon of that ship:—

"This patient was received on the 15th of October for the treatment of cardiac disease. On admission his face was pale and puffy, and his countenance anxious. He suffered from dyspnœa. Pulsation above the sternum and in the carotids was very marked, and a bellows sound was heard with both sounds of the heart. I suspected aneurism about the arch of the aorta. On the 17th there was œdema of the feet, and he was unable to sleep in the horizontal position. The dyspnœa increased, and all the symptoms became worse; nothing that he took gave him relief. On the 3rd of November the legs began to swell, and the œdema rapidly extended up the thighs. He became more restless, and suffered from flatulence and nausea; at times the cough was very troublesome, and pain in the back severe. On one or two occasions he expectorated a few small clots of blood. He became gradually worse, and about 2 a.m. of the 7th of November had a severe fit of coughing and expectorated a small quantity of blood, after which he became quiet, and died at 4 a.m.

Post-mortem examination of the body.—On opening the chest a large quantity of blood was found in the posterior and middle mediastina. The lungs were healthy, with slight adhesions. The heart was of an enormous size, weighing over sixteen ounces, very soft, and easily torn. The right auricle was much enlarged; the valves were healthy, but the left auriculo-ventricular opening was enormous.

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enormous. The arch of the aorta was bulged out at the back to a great extent. The sac included the innominata, left common carotid, and left sub-clavian arteries, and pressed heavily on the trachea. The liver was enlarged, and of a pale grey colour. The mucous membrane of the stomach was pale but healthy; the other viscera were not examined."

Diseases of the Alimentary Canal.—There was a great reduction in the ratio of cases coming under this head, as compared with the preceding year, and the invaliding and death-rates are also less.

A fatal case of gastritis occurred in the person of a young officer of the Spiteful, who was seized early in the morning of the 28th of February with spasmodic pain in the bowels, and constant vomiting. He had been on shore the previous day, and had eaten eleven hard-boiled eggs, and a large quantity of fruit. Under the treatment to which he was subjected he appeared to improve, although the irritability of the stomach continued to a greater or less extent, until the 3rd of March, when, after passing a quiet night, vomiting returned towards morning, and he complained for the first time of burning pain at the epigastrium, extending along the œsophagus. The pulse was quiet and compressible, the skin moist, and the urine high-coloured and turbid. The tongue was furred, but cleaning at the tip and edges, and the appetite was returning. On the 4th he had passed a restless night, having been much troubled with flatus and epigastric tenderness. The bowels had not been moved since the morning of the 2nd. The tongue was cleaning, the vomiting almost gone. Pulse about 90, weak. He had a great craving for food and stimulants. An enema was administered, which relieved all his more urgent symptoms; but about noon he had recurrence of the vomiting, the ejected matter being strongly acid, and mixed with stringy mucus. On the 5th he had passed a quiet night, although he had not slept much, and had only vomited once since noon of the previous day. The craving for food continued. The pulse was 100, soft; the breathing quick; the skin cool and moist, and the tongue furred at the base and centre, but clean round the edges. He had an egg and two ounces of port-wine beaten up with it, and felt revived by it. At noon there was no return of vomiting, but the features were sharp and pinched, and his body gave out a peculiar earthy smell, which he was the first to notice. At 2.30 p.m. he vomited about a pint of fluid resembling black vomit; he felt easy, but was evidently

evidently sinking. At 4.30 p. m. he had another attack of vomiting, the ejected matter being blood altered by the gastric juice. At 5 p.m. he again vomited a quantity of blood, after which he became unconscious, sank rapidly, and died at 5.45 p.m. No post-mortem examination of the body was made. The surgeon of the vessel, from whose report the above abridged history of the case is taken, says:—

"On reviewing the case, I find that for the first two days the symptoms were those of colic only, and it was not until the morning of the third that he complained of the epigastric tenderness, which, with the persistent vomiting, were the only signs during the progress of the case of the serious mischief going on. His pulse from the first was soft and weak, and his skin cool. The treatment was directed to soothing the irritable stomach, giving it as much rest as possible, and at the same time supporting his strength with liquid food and stimulants, as soon as they could be given with safety. The alkaline effervescing draught, with hydrocyanic acid, had great influence in arresting the vomiting and enabling the stomach to retain food and medicine. He seemed, though weak, to be progressing favourably till the forenoon of the 5th, when probably some oozing of blood took place into the stomach, after which he sank rapidly."

Diarrhœa and Dysentery.—There were four cases of dysentery, and four of diarrhœa in the Doterel. Of these, one case of dysentery proved fatal. The returns from this vessel are very imperfect, so that but little information is to be obtained on any subject in connection with it; but from what records there are, it would appear that the majority of the dysenteric cases occurred in the month of August, when the vessel was at Monte Video, and that in two instances at least they were occasioned by over-indulgence in a bad kind of spirit sold to the men when on shore on leave. The fatal case occurred in the person of an officer, who although not presenting symptoms of a very alarming character, had so strong a presentiment that he would not recover, that the course of the disease was probably in some measure influenced by the depression of spirits consequent on his mental condition. He was removed for convenience of treatment to the Civil Hospital on shore, but he died on the following day. He had been only seven days under treatment, and would have been sent to hospital earlier but for the state of the weather, which prevented communication with the shore.

There was one case of dysentery in the Egmont, and forty-six of diarrhœa; and in the Linnet there were twenty-one cases of the latter disease. Very little information is given from either vessel in connection with these cases, but upon

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the whole they were mild and readily amenable to treatment, although in some there was a good deal of straining and colic.

In the Narcissus there were ninety-seven cases of diarrhœa, fifty-two of which occurred during the Lady quarter of the year, when the vessel was at the Falkland Islands, and in the River Plate. The majority appear to have been of an exceedingly mild character, the average duration of each case on the sick-list being only a little over two days. Very little information is given in connection with them. Some were attributed to the internal congestion consequent on the sudden change of temperature experienced on the passage to the Falkland Islands.

Little or no information is given in connection with two cases of dysentery and twenty-five of diarrhœa that occurred in the Sharpshooter.

In the Spiteful, in which there were forty-eight cases of diarrhœa, the majority occurred during the Lady quarter of the year, when the vessel was at Monte Video. The surgeon says :—

"On the 23rd of February, diarrhœa broke out in the ship, increasing in intensity from day to day, till on the 4th of March the greater part of the crew suffered in some degree; on the 3rd and 4th alone, eleven cases were put on the list for this complaint. The symptoms were considerable fever, nausea, vomiting, colic, and diarrhœa, the stools being at first watery, then mucous, and in some cases bloody. The greater number of the cases are not shown on the list, all the treatment required being a dose of castor oil and laudanum, and low diet for a day. In several the vomiting was so severe that nothing would remain on the stomach till its irritability had been allayed by effervescing draughts with hydrocyanic acid and opium, and sinapisms externally. A combination of grey powder and dovers powder was useful when the stools were mucous and bloody, and an opiate suppository was occasionally used for the tenesmus. Atonic diarrhœa remained in a few instances after all the active symptoms had disappeared, and was cured by sulphate of copper and opium. The diet was rice and beef-tea; rice-water being used as a drink.

"On making inquiries on shore, I found that all ships suffered from diarrhœa and dysentery during the summer months, especially on first coming to this place. These diseases are also very common among the inhabitants of Monte Video at that season. Various reasons have been given for the prevalence of these complaints, viz., the variable nature of the climate, exposure to the sun, and the quality of the food and water, the last being in my opinion the principal cause. The water-supply of the town is very scanty, depending almost entirely on the rainfall during the winter months, caught on the

the roofs of the houses, and stored in tanks for summer use. This after a long drought, becomes filled with animal and vegetable matter, and is unfit for use unless boiled or filtered. The water used on board is obtained from a river near the town, supplied by surface-drainage; of good quality during the wet months, but stagnant towards the end of summer. I recommended the use of distilled water for drinking and cooking; but this could not be accomplished, so that I am unable to state what the effect on the health of the ship's company would have been. All the drinking water was, however, boiled before being used, and with good effect, I think. That the water is at least partly the cause of the prevailing diarrhœa, is shown by the fact that the officers, who drink filtered water, do not suffer; and the few cases that did occur among them, could be traced either to eating to excess, or drinking stagnant water on shore.

"If a charcoal filter could be fitted to the drinking tank in vessels employed in large rivers or stations, where the water is bad and dysentery prevails, it would probably go a great way in preventing that disease. Some of the most serious cases occurred on Thursdays and Sundays, when the men are on salt provisions, leading me to suppose that they had bought fresh meat of an inferior quality on shore. I accordingly inspected the fresh meat on board on the next salt-meat day, when I found about 50 lbs. putrid, and quite unfit for food; the stench in the galley where the meat was being cooked was almost unbearable. Two of the men who had suffered severely from symptoms of acrid poisoning, confessed that their dinner was so offensive that the meat had to be smothered in onions before they could swallow it. To prevent this in future, all private stocks of meat were inspected before being cooked, and strict orders were given to the ship's cook not to allow any putrid meat into the galley."

There were twenty cases of diarrhœa in the Triton, each case being on an average seven days under treatment. The medical officer* of the vessel says in reference to them—

"My experience goes to prove that diarrhœa as well as slight febrile attacks are much more prevalent in the River Plate than in Rio Janeiro, notwithstanding the undoubted salubrity of the climate. The unfiltered river water consumed by the men may have a powerful influence in causing this excess, but it would not be correct to ascribe to it all the blame, as the men of this ship are allowed more leave at Monte Video than elsewhere; they consume large quantities of animal food and fruit, paying little regard to the quality; and they are exposed to more rapid variations of temperature in the River Plate than at Rio. This last is indeed the great objection to the climate of this part of South America. In Rio Janeiro, on the contrary, the high price of meat precludes excessive eating, and the climate, although hot and moist, is very equable.

"The

* Assistant Surgeon George Bolster.

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"The treatment of the disease varied with its cause, but as this in nine cases out of ten, was simply over-eating, an emetic to commence with was found very efficacious, and this followed by a rhubarb draught, was often sufficient to effect a cure. Occasionally, however, an astringent mixture was necessary."

Diseases of the Genito-Urinary Organs.—There is a very considerable increase in the ratio of cases coming under this head as compared with the preceding year, and the invaliding rate is nearly doubled. This is mainly owing to the greater prevalence of venereal diseases in one vessel, the Narcissus, in which twenty cases of primary syphilis, eighteen of secondary syphilis, and four of gonorrhœa occurred. Most of this disease was the result of contagion at Bahia, when general leave was granted to the ship's company, and where the surgeon says more cases of gonorrhœa and syphilis resulted than at any other part of the station they had visited. All the cases of syphilis, with one exception, presented the form of indurated chancre. In the exceptional case the sore was phagedenic.

As a rule these diseases are not common in this station, and to this fact testimony is borne by most of the medical officers.

Diseases of the Bones and Joints.—A fatal case of caries of the petrous portion of the temporal bone occurred in the person of a boy of the Narcissus of a very delicate habit of body, but who had never been placed on the sick-list of the ship previous to the date of his entry for the disease which carried him off (1st of January). He complained of pain in his head and left ear, from which there was a bland purulent discharge. He had that morning experienced severe vertigo. He stated that the pain had never been acute, and that the discharge from the ear had been going on for about a fortnight. He had been exposed to cold three days previously, on the passage to the Falkland Islands, when the pain in the ear had increased. On the 3rd of January the discharge continued much the same, and free from odour, but he complained of more giddiness, and of deep-seated but not acute pain in the head; the pulse was natural, and the skin cool. On the 5th the pain was relieved, the discharge had rather increased in quantity but was still devoid of smell. On the 6th the discharge had still more increased, and became sanguineous; he complained of more pain in the head, but not of an acute nature; he felt more frequently giddy. He was confined

confined to his cot contrary to his will, and directed to lie on the left side. On the 7th he complained more of pain in his head, and had vomited twice in the night. The tongue was clean, and there was no gastric derangement. The hair was ordered to be removed from around the ear, and a blister applied. During the day he became more restless, the discharge from the ear had increased, and was sanguineous, but not fetid; the skin was hot but not dry, the pulse 100, rather weak. Towards the evening his breathing was noticed to be oppressed, and the mental faculties affected; he did not like to be disturbed or spoken to. On the 8th the report was—

"He has passed a restless night; there have been no convulsions or sharp cries, but he has moaned frequently, and moved his arms about. The pupils act, and are moderately dilated; he can be roused when spoken to, but does not answer questions; the skin feels rather dry; pulse 96. The bowels were not much moved yesterday, but he passes his urine: the breathing is more oppressed. The blister was ordered to be enlarged round the ear; he was to have a purgative enema, and a catheter was to be used if necessary. The enema acted well, but he passed the motion, as well as his urine, in bed.

"Four p. m. A little yellow pus came from the ear when syringed this morning, but since then there has been no discharge. He has taken a little beef-tea during the day, but now the power of deglutition is gone; his skin remains dry; pulse 100, weak; the pupils are more dilated, and the breathing at times stertorous; he is not restless as in the morning, but lies quietly on his back, with a placid countenance. From this time the general oppression and coma steadily increased, accompanied with stertorous breathing, till he died at 7. 45 p.m.

"Post-mortem examination sixteen hours after death. On opening the skull and removing the dura-mater, venous congestion was observed over the surface of the brain; at the base the membranes showed no trace of inflammation or effusion of lymph, excepting a small spot the size of a shilling on the under surface of the left lobe of the cerebellum to which the arachnoid was too firmly attached to be of recent origin. About one ounce of pure pus was found effused and pressing on the pons varolii and medulla oblongata; the matter was traced to an opening through the dura mater just internal to the opening of the meatus, and the petrous portion of the temporal bone was carious at this point. There was no unusual amount of serum in the ventricles or at the base of the brain. The brain itself when cut into was found to be firm and healthy in all its parts."

The surgeon of the Narcissus, from whose report the above history is taken, says that the case presents—

"Many points of interest. The insidious manner in which the disease culminated to a fatal issue, and the little pain complained of by the patient (although contrary to his own statement he had been

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suffering more or less for the last five months with pain and occasional discharge from the ear, as verified by his messmates); the absence of a fetid discharge until the last two days, and the immunity from inflammation of the membranes at the base of the brain, which is the usual sequence of caries of the internal ear, the one spot of organic adhesion by the arachnoid indicating an old inflammatory process. The first serious symptom of brain complication was the vomiting coming on without gastric irritation or foul tongue; then came the oppression of breathing, soon followed by the impairment of the power of deglutition, accounted for by the direct pressure made on the pons varolii and medulla oblongata by the effused matter. The absence of convulsions or paralysis of the upper extremities suggested the absence of any other disease of the brain structure, which was verified by a careful examination.

"In looking over the recorded cases of sanguineous compression in different parts of the brain, the pons varolii and medulla oblongata appear to be peculiarly exempt from accidents of direct pressure caused by effusion of blood in their structure or from circumscribed pressure on their surfaces. The matter in this case appeared to be confined in the posterior part of the anterior sub-arachnoid space from whence it issued as the knife was applied before dividing the medulla oblongata in removing the brain."

Wounds and Injuries.—A man was drowned by the capsizing of a shore boat in which he was returning to his ship from leave; and a marine of exceedingly intemperate habits, and who had been repeatedly under treatment for delirium tremens, committed suicide by cutting his throat. The total number of deaths was ten, which is in the ratio of 8·3 per 1,000 of mean force, being a reduction as compared with the preceding year equal to 3·1 per 1,000.

Invalided.—One man was invalided for the sequelæ of fever; three for diseases of the brain and nervous system; six for diseases of the respiratory organs, four of whom were phthisical; five for diseases of the heart and bloodvessels; two for diseases of the alimentary canal; one for disease of the liver; ten for diseases of the genito-urinary organs; three for rheumatism; one for disease of the bones and joints; four for diseases of the special senses; three for diseases of the skin and cellular tissue; one for dyspepsia and debility; and three for hernia; making the total number invalided forty-three, which is in the ratio of 35·8 per 1,000, being a slight increase compared with the preceding year.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	48	40·	1	·8	1	·8
Intermittent Fever	9	7·5	—	—	—	—
Scarlatina	24	20·	—	—	—	—
Varicella	1	·8	—	—	—	—
Epilepsy	2	1·6	1	·8	—	—
Paralysis	2	1·6	1	·8	—	—
Insanity	2	1·6	1	·8	—	—
Neuralgia	8	6·6	—	—	—	—
Vertigo	1	·8	—	—	—	—
Inflammation of the Lungs and Pleura	10	8·3	—	—	—	—
Phthisis and Hæmoptysis	5	4·1	4	3·3	2	1·6
Influenza and Catarrh	190	158·3	—	—	—	—
Cynanche	44	36·6	1	·8	—	—
Asthma	-	-	1	·8	—	—
Disease of the Heart, Functional and Organic	15	12·5	4	3·3	1	·8
Hæmorrhoids	5	4·1	—	—	—	—
Varix	2	1·6	1	·8	—	—
Disease of the Stomach and Bowels	3	2·5	-	-	1	·8
Dysentery	7	5·8	1	·8	1	·8
Diarrhœa	263	219·1	1	·8	—	—
Constipation and Colic	26	21·6	—	—	—	—
Disease of the Liver	5	4·1	1	·8	—	—
Jaundice	1	·8	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	2	1·6	—	—	—	—
Syphilis, Primary	36	30·	—	—	—	—
Syphilis, Secondary	29	24·1	5	4·1	—	—
Gonorrhœa	16	13·3	—	—	—	—
Orchitis	14	11·6	—	—	—	—
Stricture	10	8·3	5	4·1	—	—
Incontinence of Urine, &c.	1	·8	—	—	—	—
Rheumatism	79	65·8	3	2·5	—	—
Gout	3	2·5	—	—	—	—
Diseases of the Bones and Joints	11	9·1	1	·8	1	·8
Inflammation of the Eyes	13	10·8	—	—	—	—
Amaurosis and Cataract	5	4·1	2	1·6	—	—
Otitis and Deafness	13	10·8	2	1·6	—	—
Erysipelas	3	2·5	—	—	—	—
Scrofula	3	2·5	—	—	—	—
Bubo (*Symp.*)	21	17·5	1	·8	—	—
Phlegmon and Abscess	305	254·1	—	—	—	—
Ulcer	122	101·6	1	·8	—	—
Psora	7	5·8	—	—	—	—
Eruptions, &c.	16	13·3	1	·8	—	—
Dyspepsia and Debility	83	69·1	1	·8	—	—
Dropsy	—	—	—	—	1	·8
Worms	9	7·5	—	—	—	—
Headache	9	7·5	—	—	—	—
Wounds and Injuries	322	268·3	—	—	—	—
Burns and Scalds	16	13·3	—	—	—	—
Hernia	5	4·1	3	2·5	—	—
Drowned	—	—	—	—	1	·8
Suicide	1	·8	—	—	1	·8
TOTAL	1,827	1522·5	43	35·8	10	8·3

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	464	78	542	1·4	1·1
Intermittent Fever	145	12	157	·4	·3
Scarlatina	404	-	404	1·1	·9
Varicella	1	17	18	—	—
Epilepsy	2	59	61	·1	—
Paralysis	81	-	81	·2	·1
Insanity	68	-	68	·1	—
Neuralgia	24	-	24	—	—
Vertigo	4	-	4	—	—
Inflammation of the Lungs and Pleura	172	194	366	1·	·8
Phthisis and Hæmoptysis	162	243	405	1·1	·9
Influenza and Catarrh	1,090	60	1,150	3·1	2·5
Cynanche	398	-	398	1·	—
Asthma	51	-	51	·1	—
Disease of the Heart, Functional and Organic	176	89	265	·7	·5
Hæmorrhoids	34	-	34	—	—
Varix	13	-	13	—	—
Disease of the Stomach and Bowels	57	-	57	·1	—
Dysentery	82	104	186	·5	·4
Diarrhœa	1,067	-	1,067	2·9	2·4
Constipation and Colic	101	-	101	·2	·1
Disease of the *Liver*	103	111	214	·5	·4
Jaundice	23	-	23	—	—

TABLE, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	26	81	107	·2	·1
Syphilis, Primary	1,201	203	1,404	3·8	3·1
Syphilis, Secondary	865	251	1,116	3·	2·5
Gonorrhœa	202	1	203	·6	·5
Orchitis	238	80	318	·8	·6
Stricture	199	18	217	·5	·4
Incontinence of Urine, &c.	4	-	4	—	—
Rheumatism	728	179	907	2·4	2·
Gout	22	-	22	—	—
Disease of the Bones and Joints	109	-	109	·2	·1
Inflammation of the Eyes	105	-	105	·2	·1
Amaurosis and Cataract	134	-	134	·3	·2
Otitis and Deafness	126	-	126	·3	·2
Erysipelas	14	8	22	—	—
Scrofula	71	51	122	·3	·2
Bubo (*Symp.*)	658	163	821	2·2	1·8
Phlegmon and Abscess	2,608	114	2,722	7·4	6·1
Ulcer	2,073	155	2,228	6·1	5·
Psora	42	-	42	·1	—
Eruptions, &c.	296	-	296	·8	·6
Dyspepsia and Debility	715	170	885	2·4	2·
Worms	91	-	91	·2	·1
Headache	51	-	51	·1	—
Wounds and Injuries	3,429	102	3,531	9·6	8·
Burns and Scalds	192	-	192	·5	·4
Hernia	85	-	85	·2	·1
TOTAL	19,006	2,543	21,549	59·	49·

TABLE, No. 3.

SHOWING the Number INVALIDED from each Ship employed on the SOUTH EAST COAST OF AMERICA STATION.

CAUSE of INVALIDING.	Doterel.	Gleaner.	Narcissus.	Sharpshooter.	Spider.	Spiteful.	Triton.	TOTAL.
Continued and Remittent Fever	–	–	–	1	–	–	–	1
Insanity	–	–	1	–	–	–	–	1
Epilepsy	–	–	1	–	–	–	–	1
Paralysis	–	1	–	–	–	–	–	1
Phthisis and Hæmoptysis	–	–	4	–	–	–	–	4
Cynanche	–	–	1	–	–	–	–	1
Asthma	–	–	1	–	–	–	–	1
Disease of the Heart, Functional and Organic	–	1	1	–	1	1	–	4
Varix	–	–	1	–	–	–	–	1
Dysentery	1	–	–	–	–	–	–	1
Diarrhœa	–	–	1	–	–	–	–	1
Disease of the Liver	–	–	–	–	–	1	–	1
Syphilis, Secondary	–	1	3	1	–	–	–	5
Stricture	–	–	3	1	–	–	1	5
Rheumatism	2	–	1	–	–	–	–	3
Diseases of the Bones and Joints	–	–	–	–	–	–	1	1
Amaurosis and Cataract	–	–	1	–	–	1	–	2
Otitis and Deafness	1	–	1	–	–	–	–	2
Bubo (*Symp.*)	–	–	1	–	–	–	–	1
Ulcer	–	–	1	–	–	–	–	1
Eruptions, &c.	–	–	1	–	–	–	–	1
Dyspepsia and Debility	–	–	–	–	–	1	–	1
Hernia	–	–	2	–	–	1	–	3
TOTAL	4	3	25	3	1	5	2	43

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship employed on the SOUTH EAST COAST OF AMERICA STATION.

CAUSE OF DEATH.	Doterel.	Gleaner.	Marines, Falkland.	Narcissus.	Spider.	Spiteful.	TOTAL.
Continued and Remittent Fever	–	–	–	1	–	–	1
Phthisis	–	1	–	1	–	–	2
Disease of the Heart	–	–	–	–	1	–	1
Gastritis	–	–	–	–	–	1	1
Dysentery	1	–	–	–	–	–	1
Diseases of the Bones and Joints	–	–	–	[a]1	–	–	1
Dropsy	–	–	–	1	–	–	1
Drowned	–	–	–	–	–	1	1
Suicide	–	–	1	–	–	–	1
TOTAL	1	1	1	4	1	2	10

a Caries of temporal bone.

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Cases; the Total Number of Days' Sickness on Board; the Average Number of Men Sick Daily in each Ship; and the Number discharged to Hospital.

D. Returns Defective.

Rate, &c.	NAMES of SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.	Period.	Average Complements.	Average Complements Corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number discharged to Hospital.
Fourth Rate -	Narcissus - -	Devonport -	4 April 1865	35	2,665	S. 400	Year - -	570	570	787	8,941	24·4	42·8	6
Sloop - -	Spiteful - -	Woolwich -	2 Nov. 1865	6	1,054	P. 280	Year - -	175	175	391	2,996	8·2	46·8	3
Steam-Vessel -	Sharpshooter -	Portsmouth	29 Sept. 1864	6	503	S. 160	Year - -	85	85	152	1,441	3·9	45·8	5
	Triton - - -	Devonport -	23 Jan. 1863	3	654	P. 260	Year - -	90	90	94	1,231	3·3	36·6	8
Gun-boat -	Doterel - D.	Monte Video	1 July 1865	2	270	S. 60	Year - -	35	35	29	390	1·	28·5	4
	Gleaner - -	Devonport -	20 April 1865	2	217	S. 60	Year - -	35	35	39	473	1·2	34·2	7
	Linnet - - -	Sheerness -	8 Aug. 1865	2	268	S. 60	Year - -	40	40	79	648	1·7	42·5	3
	Spider - - D.	Monte Video	21 June 1865	2	236	S. 60	Year - -	40	40	23	227	·6	15·	5
Receiving Ship	Egmont - -	Portsmouth	23 Dec. 1862	4	1,780	S. 200	Year - -	110	110	225	2,613	7·1	64·5	–
Marine Detachment, Falkland Islands - -		- - -		–	–	–	- - -	20	20	8	46	·1	5·	–

Table, No. 6.

Showing the Number of Cases of all Diseases and Injuries in each Ship employed on the South East Coast of America Station.

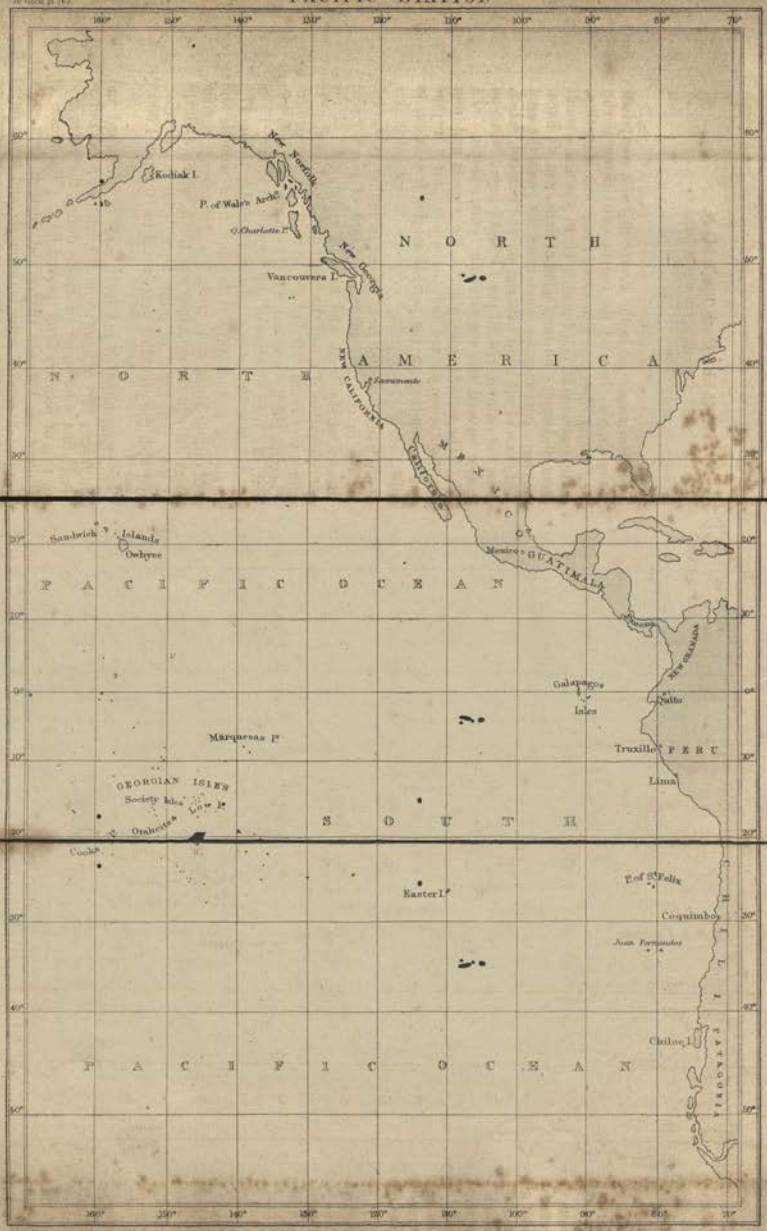
DISEASE OR INJURY.	Doterel.	Egmont.	Gleaner.	Linnet.	Marines, Falkland Islands.	Narcissus.	Sharpshooter.	Spider.	Spiteful.	Triton.	Total.
Continued and Remittent Fever	–	8	–	–	–	8	10	–	15	7	48
Intermittent Fever	–	–	–	5	–	4	–	–	–	–	9
Varicella	–	–	–	–	–	–	–	–	–	1	1
Scarlatina	–	24	–	–	–	–	–	–	–	–	24
Insanity	–	–	–	1	–	1	–	–	–	–	2
Epilepsy	–	–	–	–	–	1	1	–	–	–	2
Paralysis	–	–	–	–	–	1	–	–	1	–	2
Neuralgia	–	2	–	–	–	6	–	–	–	–	8
Vertigo	–	1	–	–	–	–	–	–	–	–	1
Inflammation of the Lungs and Pleura	–	2	1	2	–	1	–	1	3	–	10
Phthisis and Hæmoptysis	–	–	1	–	–	4	–	–	–	–	5
Cynanche	–	3	–	2	–	28	–	–	6	5	44
Influenza and Catarrh	6	16	12	2	5	77	13	6	48	5	190
Disease of the Heart, Functional and Organic	–	–	1	–	–	8	–	1	4	1	15
Hæmorrhoids	–	–	–	–	–	2	3	–	–	–	5
Varix	–	–	–	–	–	2	–	–	–	–	2
Inflammation of the Stomach and Bowels	–	–	–	–	–	–	2	–	1	–	3
Dysentery	4	1	–	–	–	–	2	–	–	–	7
Diarrhœa	4	46	–	21	–	97	25	–	48	22	263
Constipation and Colic	2	–	1	–	–	3	3	1	16	–	26
Inflammation of the Liver	–	–	–	–	–	1	3	–	1	–	5
Jaundice	–	1	–	–	–	–	–	–	–	–	1
Inflammation of the Bladder and Kidneys	1	–	–	–	–	–	–	–	1	–	2
Syphilis, Primary	–	4	2	1	–	20	4	1	1	3	36
Ditto - Secondary	–	–	–	–	–	18	4	–	2	5	29
Gonorrhœa	–	1	–	2	–	4	–	–	4	5	16
Orchitis	–	–	2	3	–	3	–	–	5	1	14
Stricture of the Urethra	–	–	–	–	–	5	1	–	–	4	10
Incontinence of Urine, &c.	–	–	–	1	–	–	–	–	–	–	1
Rheumatism	1	12	3	9	–	33	3	4	10	4	79
Gout	–	–	–	–	–	2	–	–	1	–	3
Diseases of the Bones and Joints	–	–	–	2	–	6	–	–	1	2	11
Inflammation of the Eyes	–	2	–	1	–	5	1	–	3	1	13
Amaurosis and Cataract	–	*a*1	–	–	–	3	–	–	1	–	5
Otitis and Deafness	–	4	–	–	–	5	2	–	2	–	13
Erysipelas	–	–	–	–	–	1	2	–	–	–	3
Scrofula	–	–	–	–	–	1	1	–	1	–	3
Bubo (*Symp.*)	–	–	–	–	–	12	1	–	6	2	21
Phlegmon and Abscess	8	34	2	9	1	143	37	1	60	10	305
Ulcer	–	8	3	3	–	65	6	–	31	6	122
Psora	–	–	–	–	–	5	1	–	1	–	7
Eruptions, &c.	–	1	–	–	–	11	1	–	3	–	16
Dyspepsia and Debility	–	12	3	4	1	24	5	2	31	1	83
Headache, &c.	–	3	–	3	–	–	1	–	2	–	9
Worms	–	*b*1	–	–	–	*b* 8	–	–	–	–	9
Wounds and Injuries	3	38	7	8	–	155	19	6	77	9	322
Burns and Scalds	–	–	–	–	–	12	1	–	3	–	16
Hernia	–	–	1	–	–	2	–	–	2	–	5
Suicide	–	–	–	–	1	–	–	–	–	–	1
Total	29	225	39	79	8	787	152	23	391	94	1,827

a Nyctalopia.

b Tænia.

To face p. 167

PACIFIC STATION



PACIFIC STATION.

Pacific Station.

THE squadron employed in the Pacific in 1866, comprised thirteen vessels, viz. three of the fourth rate; three of the sixth rate; five sloops; one gun-vessel; and one store ship, permanently stationed at Valparaiso. There was also a small detachment of Marines on the Island of San Juan de Fuca. The mean force corrected for time was 2,390, and the total number of cases of all kinds entered on the sick-list, 4,172, which is in the ratio of 1745·6 per 1,000 of force, being an increase, as compared with the preceding year, equal to 230·4 per 1,000. The returns from nine of the vessels and from the Marine detachment are for the whole year; for the remaining vessels they are for periods varying from three to six months.

The daily loss of service from fevers, including the exanthemata, was in the ratio of 7· per 1,000 of mean force; from diseases of the brain and nervous system, ·4; of the organs of respiration, 7·2; of the heart and bloodvessels, ·9; of the alimentary canal, 2·3; of the liver ·6; of the genito-urinary organs, chiefly venereal, 11·; from rheumatism, 4·6; from gout, ·3; from diseases of the bones and joints, ·1; of the special senses, ·3; of the skin and cellular tissue, 17·; from dyspepsia and debility, 1·5; and from wounds and injuries of various kinds, and hernia, 9·9. The average number of men sick daily in the squadron was 159·5, which is in the ratio of 66·7 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 16·9 per 1,000.

Fevers.—Four hundred and seven cases of continued and remittent fever; fifty of ague; one of small-pox; and thirty-one of scarlatina, were under treatment during the year; and of these two of primary fever proved fatal. Each case of primary fever was between twelve and thirteen days under treatment; each case of ague between six and seven days; the case of small-pox forty-six days; and each case of scarlatina about twenty-seven days.

Pacific Station.

Continued and Remittent Fevers.—There were twenty-two cases of primary fever in the Alert, five of which are classed as remittent and seventeen as ephemeral. The average duration of each case of the remittent type was fifteen days, and of the ephemeral between seven and eight days. Neither form of fever appears to have been of much importance, as but little allusion is made to them in the returns from the ship.

There were 329 cases of primary fever in the Clio. Of these, twenty, classed as continued, and one remittent, occurred in the Midsummer quarter of the year, when the vessel was off the Coast of Central America; 199 in which no division of type is made, in the Michaelmas quarter and in the same locality; and thirty-eight of remittent fever in the Christmas quarter, when the ship was on her passage to or at Vancouver's Island. The cases of continued fever were of an ephemeral nature, the average duration of each being between four and five days; the average duration of each case of remittent fever was between twelve and thirteen days. The surgeon* thinks it probable that the fever, which became epidemic, was contracted at San Blas, and that it had its origin in the shipment of some wood there. The vessel arrived at San Blas on the 4th of July. Fifty-six men were employed on shore loading the boats with mangrove wood, which was found to be green and sappy. This work was performed on a sandspit, bounded on one side by the sea, and on the other by a river which was bordered by marshes and mangrove swamps. As time was of importance, the men were employed from 4 a.m. to 6 p.m., their only intervals of rest being the time in which the boats were employed making their passages to the ship. Quinine in rum was given to the men before landing. The coal bunkers were first filled with wood, and afterwards it was piled on the main deck, the effect of which was to block up most of the gun-ports. On the 9th of July it was reported that the wood in the bunkers was heating, the temperature having risen to 94°. A column of heated air having the sour smell of fermentation ascended continually through the bunker on the lower deck, and the atmosphere was very oppressive. On the 7th of July the starboard spirit room, which had not been opened for ten days, was found to be so full of carbonic acid gas that the light in

* Surgeon W. G. Hill.

in a well-protected lantern was immediately extinguished. This was at once remedied by a large windsail being directed into the spirit room.

The wooding of the ship was completed on the 11th, and on the 13th she sailed from San Blas, and after a detention of a few days at Manzanilla, arrived at Acapulco on the 19th of July. All the wood had been consumed on the 18th. The report proceeds to state that—

"Acapulco at this time was said to be very unhealthy, but as there was a deficiency of labourers for filling coal bags, sixteen of our men were employed on shore exposed to the great heat of a tropical sun. Nearly every evening the boats were at the disposal of the men to go and bathe, and the place of their selection was in the immediate vicinity of an old graveyard.

"On the 28th of July we sailed from Acapulco, having taken in 150 tons of coal, and on the 31st a well-marked case of remittent fever occurred in the person of a leading seaman, who had not been employed on shore at Acapulco, and upwards of 130 cases of a similar type came under my care in quick succession. Among such a large number of cases, there was naturally a great variety of symptoms, but the fever was usually preceded for about thirty hours by lassitude, slight vertigo, nausea and headache. Many who attempted to treat these symptoms with indifference suddenly fell down insensible, and high fever and delirium would not uncommonly ensue as a consequence. In the early stages of the attack emetics of ipecacuan and antimony were administered, and subsequently quinine in doses never exceeding fifteen grains nor less than five. In those cases in which emetics were not employed, vomiting of dark green bilious matter frequently occurred, and was followed by great irritability of the stomach; and after the febrile symptoms were subdued, debility and anorexia continued for a long time. The tongue was clean but flaccid, and its dorsum was of a pale chocolate colour. Vertigo was the most persistent symptom during the attack, and syncope was not uncommon."

The surgeon of the ship from whom the above report was obtained having himself been invalided for the fever, the charge of the sick fell to another medical officer*, who thus continues the history of the epidemic:—

"The Clio arrived at Panama on the 15th of August, from the coast of Mexico. She had then a large number of men on the list suffering from fever of a remittent type. She remained at Panama until the 29th of September, when she sailed for Vancouver's Island.

"While she remained at Panama, those men who were labouring under

* Acting Surgeon John Walsh, M.D.

Pacific Station.

under fever on her arrival did not appear to derive any benefit from their stay there. Very few new cases, however, appeared, but nearly all those who had a first attack on the Mexican coast had relapses at Panama. It was the rainy season at the time, which I think had something to do with preventing their recovery. The inhabitants of Panama say that during the fine season all persons coming there suffering from Acapulco fever recover very rapidly."

Of the fever itself he says:—

"Two or three days before the attack the patient would generally feel more or less languid, and complain of a sense of uneasiness at the epigastrium, with loss of appetite, and pains in the loins and limbs. The attack usually came on suddenly, generally after the above symptoms, but sometimes without any premonitory symptoms at all; the patient feeling in perfect health at the time, and going on with his ordinary duties, would fall down from a sudden attack of vertigo. At other times a fit of rigors would be the first sign of an attack. In many cases the rigors would follow the premonitory symptoms above-mentioned; in severe cases constant vomiting, and a state almost approaching collapse would next come on, the face would be pale, and the pulse almost imperceptible. In slight cases the patient would only complain of nausea; next morning he would feel much easier, and generally only complain of headache, but towards evening he would have another paroxysm. In some cases there were paroxysms regularly every day, and often at the same hour; and in the interval the patient would suffer headache, always less in the morning, increasing towards the evening, until the paroxysm came on again. In others the paroxysms would consist of the regular cold, hot, and sweating stages; sometimes there would be no chill at all, only excessive perspiration. At other times there would be merely a slight increase of the febrile symptoms, but always marked enough to attract notice.

"In many cases irritability of the stomach, and tenderness on pressure in the epigastric region, continued through the disease; the skin assumed a yellow tinge, and was generally bathed in cold perspiration; the pulse was very weak, but rarely rapid. In severe cases the febrile action continued from two to three weeks, intense headache being a constant symptom throughout, and pain in the back a frequent one; and the patient would afterwards be left in a very weak and prostrate condition. During convalescence the spleen or liver, more frequently the former, was often enlarged and painful. In some cases there was very obstinate diarrhœa, in others copious night perspirations; both weakening the patient excessively, and keeping him on the list a very long time. Others, after they had been discharged to duty, suffered from palpitation and pain in the region of the heart.

"It would be difficult to fix any average time for the continuance of the disease. In some it would come on in a very violent manner, but after five or six days the patient would be fit for his duty; at other times it would last with regular paroxysms for from two to three

three weeks. Sometimes after the fever had subsided the patient would remain in a debilitated state for several weeks. In nearly all the cases there was a relapse after the patient had been at his duty for a short time. During our stay at Panama these relapses continued frequent, but as soon as we got into cooler weather they rapidly diminished in number.

"In addition to those men who actually had fever, the rest of the ship's company were very much debilitated, and the long voyage to Vancouver's Island (fifty-five days), part of which time they were exposed to much wet and cold, and the long time they were on salt provisions, both on this voyage and on the coast of Mexico, tended very much to keep them in an exhausted and weakened condition."

Happily there was no loss to the service by mortality from this outbreak of fever; four persons, however, were invalided for the sequelæ of the disease. It was unfortunate that the exigencies of the service called for such duties as the ship's company were employed in at San Blas and Acapulco, as nothing could possibly have been more certain to ensure a large amount of sickness. San Blas, Manzanilla, and Acapulco are most pestilential places, particularly during certain seasons of the year, and at such times ships should, if possible, avoid all communication with them. Should the requirements of the public service necessitate communication with them, then the ship should anchor as far from the shore as possible, no leave should be granted either to officers or men, and the communication should not be protracted longer than is absolutely necessary.

There were six cases of primary fever in the Columbine. They are classed as febricula, and the average duration of each case on the sick-list was six days.

In the Leander there were seven cases of primary fever, of which one is classed as remittent, three as continued, and three as typhoid. These so-called typhoid cases, however, appear to have been merely severe forms of remittent fever, complicated with diarrhœa. Irregular action of the bowels appears to be not an uncommon accompaniment of the remittent fever of Chili. Two of the cases occurred in officers, and one in a seaman. One of the officers was taken ill when on a pleasure trip, in which he was exposed for a whole night in an open boat on the River Maule, with little covering to protect him from the heavy dew which fell. On the following day, on reaching the city of Santiago, he was taken very ill, and had to remain there for some days under the care of a Civil practitioner. On his return to the ship he was in a very prostrate

 condition,

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condition, suffering from intense headache, his face pale, skin hot, and pulse 110. Delirium set in, and became somewhat active, but this appears to have subsided, and much relief to the head-symptoms to have been derived from a violent attack of epistaxis with which he was seized. This was followed by purging of very loose ochry stools, without abdominal pain. A second severe attack of hæmorrhage from the nose occurred, requiring the plugging of both nostrils, and this was followed by a marked amendment of all his symptoms, and he steadily progressed towards convalescence.

The other officer was of a naturally weakly, leuco-phlegmatic constitution, who for some time previous to being attacked had had a good deal of harassing boat duty, and while so employed had been much exposed to night dews and morning damp. In him also prostration was very marked; there was diarrhœa, without abdominal pain at first, but subsequently accompanied with some uneasiness in the right iliac fossa. As in the former case, there was active wandering delirium, followed by profuse epistaxis, in which condition he was sent to the hospital at Callao, from whence he returned on the ship being about to sail for Valparaiso. He made a good but slow recovery, having been upwards of forty days altogether under treatment. The case of the seaman only differed from that of the officers in the absence of epistaxis. In none of the cases was there at any time any appearance of eruption.

There was only one case of primary fever in the Malacca, but it was of considerable severity, and of the remittent type. With reference to it the surgeon* makes the following remarks:—

"Of primary fever but one case occurred during the period of these returns. It was of the remittent form, and occurred in the person of a marine of delicate appearance and spare habit, while the ship was lying in the harbour of Callao, in the month of July. He was entered on the sick-list on the 22nd of July, complaining of pain in the back, anorexia, and general debility. The tongue was foul, the bowels confined, the skin hot and dry, and the pulse 88. After the action of a mercurial cathartic he was ordered a saline diaphoretic every four hours; no exacerbation of fever, although carefully looked for, occurred until the fourth day, when there was a distinct rigor followed by perspiration, which lasted all night. Quinine was now ordered in four-grain doses every four hours. An exacerbation

* Surgeon W. H. Cruice.

exacerbation of fever, characterised by increased action of skin and headache, but without being preceded by rigors, took place every evening between four and six o'clock, followed by perspirations, until the ninth day, after which he had no return of fever, and on the sixteenth day he was convalescent. He was, however, very weak and nervous, and as he did not improve he was sent for change of air to sick quarters on shore on the 17th of August (the twenty-eighth day). He returned on board on the 21st, much benefited. He was subsequently on the sick-list for debility, and was not finally discharged to duty until the 25th of September. The most marked symptom in this case was gurgling in the right iliac fossa on manipulating the abdomen, combined with sluggish bowels. This symptom is almost constantly present in the remittent fever of this place. Great benefit seemed to be derived from mild cathartics, combined with a mercurial, and mercurial alteratives."

There was only one case of primary fever in the Mutine, and it was of quite an ephemeral character. The same also may be said of eleven cases of primary fever that occurred in the Scout, the average duration of each case being between six and seven days.

In the Shearwater there were twenty-eight cases of primary fever, of which five are classed as continued, three as remittent, and twenty as febricula. One of the cases of remittent fever appears to have been of great severity. It is said by the surgeon of the vessel to have been an example of the pernicious remittent type, commencing with high febrile symptoms, followed by dangerous prostration. It occurred in the person of one of the crew of the captain's gig, who had to wait on shore at Acapulco one evening for a short time.

The beneficial effect of quinine as a prophylactic was well exemplified in the immunity from fever enjoyed by a party of officers and men from this ship who were much exposed to malarious influences while employed for several days about fourteen miles up a creek on the coast of Mexico. The acting surgeon* of the vessel, who was one of the party, says:—

"On the 25th of July, at Ajiabampo, a place to the north of Mazatlan, a party of officers and men, numbering twenty-seven, landed for the purpose of taking charge of freight coming from the interior. They remained on shore for six days, during which time quinine was issued according to the instructions; viz., four grains to each man twice daily. The men also slept in the boats, which were hauled off every evening some distance from the shore. No straggling

* Acting Surgeon Thomas Burnett.

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straggling was allowed, and no one was permitted outside the tents in the daytime, on account of the heat of the sun. Although it was a very malarious district, none of the party were subsequently attacked with fever. Remittent fever was very prevalent in all the ports south of Mazatlan, especially at the time this ship was there, it being the end of the rainy season. San Blas and Acapulco were the most unhealthy places. At the latter, most of the inhabitants were more or less affected; and in a French corvette at anchor there, more than a third of her crew were suffering from fever, several cases being of the pernicious remittent type. None of the men from this ship were allowed to land there, and the coaling was done by the natives."

In the vessel, which was at anchor off Ajiabampo while the boat with the above party was up the creek, nine cases of fever occurred, all presenting nearly the same symptoms—viz., a listless appearance of the countenance, headache, rigors, nausea, pain at the epigastrium, hot skin, white tongue, and a quick and feeble pulse. There were no distinct intermissions, but the skin at one time was covered with perspiration, at another dry and hot.

The assistant surgeon* of the Shearwater makes the following remarks on the medical topography of the coast of Mexico:—

"Guaymas, the chief seaport of the province of Serioa, contains about 4,000 inhabitants. The houses are one storied, and the streets exceedingly filthy, not the slightest attempt at paving having been made. Water is procured from Artesian wells, situated about one and a-half miles out of town; it is not considered good, being hard, owing to impregnation with carbonate of lime. The spirit of the country is considered very wholesome, although containing twenty-two per cent of alcohol. The liquor is called Maescal, and is prepared from a cactus. The place is extremely unhealthy, mild intermittent fevers occurring at all seasons; and at the end of the rainy season, amongst the poor and ill fed, low remittents are very frequent. There is considerable danger from sunstroke, many of the French soldiers in garrison having suffered from this.

"Ajiabampo is the Indian name of a creek on the west coast of Mexico. Up this creek (about fourteen miles) there is a station where the merchants of Alancos bring freight and produce for exportation. Water can be procured here, as in other parts of the coast, by digging wells on the beach. Wherever there is fine white sand, there water may always certainly be found by digging a few feet. This water, after exposure to the sun for some time, becomes brackish. I suspect that at all times it contains some salt,

* Assistant Surgeon Alexander Yule.

salt, and that by evaporation of the water in the sun this becomes more concentrated, and the brackishness more evident. Twenty-six men belonging to this ship went up this creek. At the mouth of the creek there is a bar, about a mile in length, which in the months of May, June, July, and August is very safe, as the wind then always blows off the shore. In the other months of the year there is danger to the boats and the lives of the men.

"Altata is a small village on the west coast of Mexico, in the province of Culiacan, consisting of a few huts, and a small hotel kept by an Italian. There is a dangerous bar at this place, which is about a mile in length, and the whole distance, including that part between the shoals, four miles. Around the bar sharks are very numerous and voracious; they are of small size. Many boats have capsized here, and the whole of the crews have perished, being instantly devoured by sharks. When the wind is from S. E. to S. W. or S., the bar is extremely dangerous, and in the months of June, July, and August these winds are most prevalent. Altata is the seaport of Culiacan, which contains about 5,000 inhabitants.

"Manzanilla, in the province of Colima, is a miserable seaport, consisting of rude huts built along the shore. The inhabitants number about 600. The huts have no windows, large doors answering the purpose. A profuse vegetation surrounds the town on all sides, growing upon hills that form the immediate background. In a gap between the hills is a pass, leading to a large fresh-water lagoon. Fevers here are extremely common, and of the worst possible type. Everyone appears miserable and worn down. Sometimes the fever comes in so severe a form as almost to sweep the town of its inhabitants. It is dangerous for ships to lie here, even for a short time. Strangers '*en route*' by the American mail steamer are frequently infected.

"Acapulco is a seaport of Mexico, containing about 4,000 inhabitants. On every side it is surrounded by high hills, covered to their summits with trees. The town consists in part of huts, and in part of one-storied houses painted white. In the hills behind the town an opening has been cut for its ventilation; the work was performed by the Spaniards when they possessed the place. Everywhere around the town are springs of good and pure water. In some places the water bursts from the solid rock; this is the case near where the steamers coal. The town is very unhealthy, remittent and intermittent fevers prevailing to a very great extent. In 1861 and 1862, 600 people died of yellow fever, which prevailed as an epidemic in those years. Of thirty resident foreigners seventeen were seized, and seven died. At the present time the town is filled with malarious fever, every second person appearing to suffer. This is a place (as one native quaintly remarks) 'where no old men are made'; no one can live long here. During the close of the rainy season (June, July, and August), and in the dry season, the health of the people is worst. At night it is very dangerous to be exposed to the air, as then the poison is most active, and fever is almost certain to be produced. One ought never to be out after sundown. At the present time (the end of the rainy season) 500 people are sick on shore with fever. A great many of these are

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soldiers, 200 of whom have recently died. The causes of the great mortality amongst these men is their not being properly fed, for, being allowed to purchase their own provisions, they squander their money in drink instead."

There were only two cases of fever in the Topaze, but both proved fatal; one on board the ship, the other in hospital, at Valparaiso. Both cases presented severe head-symptoms, with much prostration. In one there was diarrhœa, in the other the bowels were more or less confined while he was on board; in neither was there any kind of eruption.

Small-pox.—A single case of small-pox occurred in the Leander, when the vessel was lying at Valparaiso. It was of a very modified character, the man in whom it occurred having been previously vaccinated. It is somewhat singular that the person had never been on shore at Valparaiso, either on leave or duty, but for one hour, one day, when he landed on duty. He stated that he did not enter any house, nor did he loiter on the way, and yet there appears to be little doubt that it was at that time he was infected. Small-pox was exceedingly prevalent in Valparaiso at the time.

Scarlatina.—Fourteen cases of this formidable exanthem occurred in the Alert in the Lady quarter of the year, when the vessel was at Esquimault, where the disease was prevailing on shore. The disease, as it appeared in the Alert, was very mild in all its symptoms, so much so, indeed, as to give rise to some doubts at to whether it really was scarlatina. Upon this point, however, the surgeon* seems to be quite confident. He says:—

"The stages were usually, a chill with nausea or vomiting, soreness and stiffness of the sterno-mastoid muscles, tenderness of the sub-maxillary and cervical glands, difficulty of swallowing, or a teasing cough; a circumscribed bright redness of the fauces and tonsils, often limited by a line drawn in front of the uvula; not much enlargement of the tonsils; excepting a few aphthous spots in two cases, there were no signs of exudation or of diphtheritic patches. There were increased heat and redness of the skin, a white moist tongue with prominent red papillæ, and usually after twenty-four hours, a bright red rash over the face, neck, chest, belly, groins, and hands; pressure on the exanthematous surface left a white streak. The eruption was evanescent, and disappeared when the patient went into the cold air, or exposed himself on the wet deck; in some it was of

* Surgeon F. W. Davis.

of a scarlet hue, in others of a paler red; it was usually preceded by a sense of itching or tingling of the skin; lachrymation was noticed it two cases; coryza, in none. There was no albumen nor tube-casts in the urine of any of those men before they were discharged to hospital, nor did I expect to find them at such an early period; these deposits were recognised in six cases, in hospital, afterwards. In two or three I noticed, after convalescence, œdema of the face; in one, a wound on the forehead assumed an erysipelatous aspect; and troublesome coughs, with increased vascularity of the skin, remained in two cases after their return to the ship. It may be noted that two sub-lieutenants, their boy, the Commander's boy, a serjeant, and two marines, all living close to the steerage, were affected. Besides these there were two from the port, and three from the starboard sides of the ship.

"The ward in the hospital fitted for the reception of these cases was small, and as fresh cases were admitted, those able to get out of bed were sent to other wards. This, and the extreme coldness of the weather, might account for the desquamation of the skin being slight or nil.

"The disease was not nettle-rash, nor measles, nor roseola, nor mumps, nor erythema, nor erysipelas. It was more like what prevailed in the Agamemnon and Odin (which I saw at Haslar), and in the Sealark, at Portsmouth, in 1854, when I was assistant-surgeon in charge of her. It was, doubtless, introduced from Esquimault; and I see no reason to regret either the careful diagnosis given, or the precautionary measures adopted, merely because the disease proved mild in type. After the premonitory fever the symptoms were slight, and that occasioned some scepticism as to its being true scarlatina.

"M. Bouchut's sign, which assists in the discrimination of scarlatina from measles, erythema, erysipelas, &c., is an enduring white stripe, produced at will by drawing the back of the nail over the part of the skin in which the eruption exists; pressure with the nail, or any other hard substance, produces a white streak which lasts one or two minutes; thus, with a blunt probe, the diagnosis of the disease may be distinctly inscribed on the integument, and after a minute or two, the word scarlatina disappears, when the uniform hue of the eruption again invades the written surface. This phenomenon is observable only in scarlatina. The scarlet hue of measles is not uniform, the eruption consisting of mottled patches, with very slight elevations, separated by interstices of healthy skin. In measles the procedure above described would produce an alternately red and white streak, enduring a much shorter time than in scarlatina. In erysipelas, in the redness induced by a mustard poultice, and in solar erythema the white line alluded to is not visible. I tried the experiment in one or two of the cases in this vessel. In one I wrote the word scarlatina on his chest; the white mark was evanescent; the first letters had disappeared before the last were written. In another the impression of a probe left a white streak."

There were seventeen cases of scarlatina in the Clio. They occurred at the same time as those in the Alert, and at the same

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same place. The surgeon says, that there was no difficulty in tracing the source of infection, as the disease was prevailing in the family of the man who bumboated the ship, and the men used frequently to go to his house. As in the Alert, the symptoms were so mild as to give rise to some suspicion as to the true character of the disease, but the surgeon of the Clio is quite satisfied that it was true scarlatina.

The nature of the cases in both vessels was evidently of such a character as to render the diagnosis somewhat doubtful. The surgeon* of the Sparrowhawk, which vessel was lying at Esquimault at the time, says:—

"Numerous cases of an anomalous epidemic, called scarlatina, have occurred on board Her Majesty's ships Alert and Clio, but as they all were of a very mild type, with an indistinct eruption, and were not followed by desquamation or other sequelæ, I am inclined to look upon them as a form of epidemic roseola which practitioners here meet with not unfrequently."

The assistant surgeon† of the Scout also makes the following remarks on these cases:—

"For the month of March the weather was almost uninterruptedly boisterous; a much larger quantity of rain fell than in the preceding month, and the atmosphere being constantly largely charged with moisture, tended to keep the lower deck in a very damp and uncomfortable condition. Cases of catarrh and cynanche consequently contributed largely to swell the numbers on the sick-list, and, in addition to those which appear in the Returns, many were under treatment whose symptoms were not of sufficient severity to render them unfit for duty. Those cases which are shown under the heading of cynanche presented some peculiar features, one of which was the invariable co-existence of very considerable constitutional disturbance, and the combination of such symptoms gave rise to the suspicion that an epidemic of scarlatina, in a mitigated form, had broken out in the harbour. In the other ships of the squadron, viz., the Alert and the Clio, which were at anchor at Esquimault at this time, a much larger proportion of these cases occurred than on board the Scout, but from their history they would appear to be exactly of the same type, and there is no good reason to suppose that it was other than the same epidemic, as all the ships were under the same conditions, and exposed to the same influences, and there had been constant and free intercourse between them for several weeks before. Taking for granted that it was the same disease, the principal symptom was the inflammation of the fauces, which sometimes were more or less studded with spots of superficial ulceration;

* Surgeon Peter Comrie. † Assistant Surgeon William Carmichael.

ation; and next in importance was the accompanying fever of very various intensity, but short in duration. At the commencement of the attack there was generally great depression of the vital powers, but of a merely temporary nature, the system recovering itself as rapidly as it had previously been lowered.

"All the symptoms of scarlatina were absent; its origin could not be traced to any definite source; no cases of it had occurred on shore; there was no well-defined eruption; the characteristic strawberry appearance of the tongue was absent; no desquamation took place, nor were any of the numerous cases which occurred affected with any of the troublesome sequelæ which it would be only reasonable to expect would occur in some proportion, however small. Although in any outbreak of scarlet fever there may be undoubtedly cases which present great variety in their symptoms, and in the course of the symptoms, it is an exceptional thing for an epidemic of scarlatina to run its course among such numbers of cases without the occurrence of some of greater severity, as the same morbific agents which cause the mildest are also those which produce the most serious and fatal cases. Of those which occurred on board this ship few were under treatment for more than a week, and several were not entered on the sick-list at all. One case was certainly on the sick-list for nearly two months, but it turned out that the patient, a sickly looking boy of sixteen years of age, was labouring under hereditary syphilis, and that the acute inflammation of the fauces was only superimposed on the chronic affection, from which he has suffered more or less ever since he can remember, and which subsided again, after a few days treatment, into the chronic form, it having been accompanied throughout with a well-marked syphilitic eruption."

Although these opinions may cast a doubt upon the true nature of this epidemic, nothing would have justified any remissness in adopting protective measures under the circumstances of the case, the very fact of the existence of a doubt upon the point being sufficient to indicate the propriety of leaving nothing undone to guard against the possible extension of the more formidable type of disease.

Diseases of the Brain and Nervous System.—There is a considerable decrease, both in the ratio of cases and of invaliding, under this head as compared with the preceding year, but the death-rate is higher.

Of two cases of disease of the brain, one was invalided, and the other proved fatal. The fatal case was one of considerable interest, and probably had its origin in a syphilitic taint. It occurred in the person of an officer of the Sutlej, who had only just arrived on the station, having joined the ship six

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weeks previous to being entered on the sick-list. He had come direct fram England, *vid* Panama. He was exceedingly emaciated, and presented the cadaverous appearance of a person labouring under advanced organic disease. He had been long ailing, it appeared, having been twice invalided, once for dysentery, and a second time for hepatitis. The surgeon* of the Sutlej says:—

"Within ten days of his arrival here he had three severe epileptic fits, with short intervals between them; and after each seizure, as well as at times since, he betrayed confusion of ideas and aberration of intellect. About a fortnight ago, on the 1st of October, he became affected with distressing diuresis, voiding daily from 120 to 150 ounces of pale limpid urine, of low specific gravity, unaffected by the tests for albumen or sugar; and often escaping involuntarily, both by day and night, until a urinous smell pervaded his clothes to such an extent that he became a trouble to himself, and a nuisance to his brother officers, and he was consequently sent to the Naval Hospital at Esquimault."

The following report of his progress in hospital, and of the examination of the body after death, is by the surgeon† of that establishment:—

"For some time after admission the most prominent symptoms had reference to the secretion of urine, the quantity passed daily being far above the normal standard, averaging from five to eight pints. Examination failed to detect the presence of albumen or sugar, and there was no appreciable sediment. On the 26th of October he first complained of headache affecting the frontal and occipital regions, aggravated at night. On the following day, the 27th of October, he became incoherent, and laboured under marked mental delusions. On the 28th he was rational, and had less headache. The quantity of urine was reduced to the normal standard, and the bowels were confined. He continued in this state for some days, but on the 5th of November he passed a motion in bed unconsciously, and was subsequently purged frequently, and complained of much debility. He was quite rational however. On the evening of the 9th he was very excitable, his gait was staggering, and face flushed. On the morning of the 10th of November he had an attack of paralysis, accompanied with apoplectic symptoms, stertorous breathing, total unconsciousness, and loss of voluntary power. The pupils, at first contracted, soon became dilated, and the patient sank into a state of profound coma, followed by death on the evening of the 11th of November.

"Autopsy sixteen hours after death. Body emaciated; much post-mortem

* Surgeon William Patrick. † Surgeon George Bellamy.

post-mortem congestion of posterior parts. The scar of an old bubo existed on the left groin. There were old cicatrices and discolorations over both tibiæ. Teeth very defective and loose. There was an indentation over the left frontal region, the sequela of an accident sustained in 1862. On reflecting the scalp, three spots of diseased bone were noticed on the frontal and parietal regions; one over the right frontal region near the orbit, and two others near the vertex on either side of the sagittal suture. These were independent of the indentation above noticed as resulting from accident. The diseased portions of bone were marked by congestion, by the periosteum being easily detached, a more or less porous condition of the osseous structure (the result of absorption), and a depression well marked in each situation. The depression resulting from accident was roughened as though exfoliation had taken place at some previous date. On removing the calvarium, a considerable degree of thickening was noticed opposite to the seat of injury, but the dura mater was not abnormally adherent, and there was no depression of bone sufficient to account for any head symptoms. On attempting to remove the dura mater elsewhere, it was found very adherent in the situations corresponding to diseased bone, and in one place (over the right frontal region), could not be detached without causing laceration. The inner surface of the calvarium (excepting at the spot above-mentioned) appeared healthy; the diseased portions not extending through the whole thickness of the bone. The brain and its membranes generally were much congested. The cerebro-spinal fluid was in large quantity. The dura mater could be removed easily, excepting over the anterior part of the right hemisphere, where it was adherent to the bone on one side, and connected by a mass of diseased matter to the brain itself on the other. The cerebral disease involved a large portion of the anterior lobe of the right hemisphere, and extended deeply into the brain substance. It consisted of a large, irregular deposit of tawny-yellow tuberculous-looking matter, but cut in some parts almost like cartilage. Its central portion was softened, and a small abscess existed apparently of recent formation. The brain-substance surrounding this deposit was in a state of ramollissement. In the anterior lobe of the left hemisphere a small nodule of similar deposit was seen. The other parts of the brain were healthy. *Thorax.*—Viscera generally congested, but otherwise healthy. No sign of tubercle in the lungs, which were everywhere crepitant. *Abdomen.*—Liver congested, but its internal structure was apparently healthy. Beneath Glisson's capsule, in two or three situations yellowish deposits (similar to those in the brain, but much less in extent) were noticed. The kidneys were vascular, and somewhat enlarged, but their structure appeared healthy. The spleen contained two or three deposits similar to those in the liver. The intestines were healthy."

An officer of the Sparrowhawk was found dead in bed, evidently from serous apoplexy, the effect of over-indulgence in stimulants. When seen, he was lying under the bed-clothes on his face, which was resting on the pillow, his left

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arm bent across his chest, and the right protruded from under the bedclothes in a semi-flexed attitude. He was quite cold and rigid, and the rigor mortis was so marked that it was considered probable that he had been dead about ten hours. On turning over the body, the face appeared livid, the eyelids and lips closed, and a few drops of blood were observed oozing from the nostrils. It was reported that he had retired about 9.30 p.m. on the previous evening, in a state of intoxication, his habits being somewhat intemperate. The pillow was wet with saliva, but no marks of violence were anywhere perceptible. He was in perfect health, never had been on the sick-list, nor had any medical treatment while on board the ship. A post-mortem examination, of which the following is the report by the surgeon of the ship, was held twenty-two hours after the discovery of his death :—

"*External appearance.*—Body fat and muscular. Rigor mortis well marked. Neck and face much congested. Abdomen distended, back ecchymosed.

"*Head.*—Scalp gorged with blood. Brain and membranes healthy. About three drachms of bloody serum at the base of the brain, and one drachm in the lateral ventricles.

"*Chest.*—A large amount of subcutaneous fat both on the abdominal and thoracic walls. Lungs gorged with blood. Heart small, and presenting a fat and flabby appearance; right side full of black blood; walls dark, congested, and presenting the appearance of fatty degeneration.

"Mesentery loaded with fat. Stomach and colon distended. On opening the stomach, a strong odour of spirits was perceptible, and it was found to contain a quantity of partially digested food; the mucous membrane appeared inflamed, and of a red colour in patches. The liver was large, and of a dark slate colour, the substance when cut into, appearing yellow and friable, and the ducts much dilated. The spleen was small and congested. The kidneys were large, vascular, and soft, and gorged with blood, the right weighing ten ounces."

There were thirteen cases of delirium tremens in the squadron during the year. Of these, three occurred in the persons of warrant officers; three, in petty officers; one, in a non-commissioned officer of marines; two, in able seamen; one, in an ordinary seaman; one, in a stoker; one, in a marine; and one, in a mess servant.

Diseases of the Organs of Respiration.—There is a great increase in the ratio of cases, and in the death-rate under this head compared with the preceding year, but the invaliding rates of the two years are almost precisely the same. The increase

increase in the ratio of cases, which is equal to 146·8 per 1,000, as compared with the year 1865, is entirely attributable to the prevalence of epidemic catarrh in one or two vessels.

There were fifty-five cases of catarrh in the Mutine, the great majority of which occurred during the Michaelmas quarter of the year. In remarking on them, the surgeon* says:—

"With reference to the apparently large number of fifty-five cases of catarrh entered during the year, I have to explain that twenty-nine of that number occurred in the form of an epidemic whilst lying at Valparaiso in the month of August. These were, in fact, properly speaking, cases of influenza, and ought to have been returned as such, but the first two or three being of a very mild character, the name catarrh was given and not afterwards changed. The symptoms were, generally speaking, at first, a slight shivering attack, followed by a quick pulse, hot skin, frontal headache, pain in the back and limbs, and running at the eyes and nose, with slight cough. In one or two instances diarrhœa was the prominent symptom; in others, sore throat, whilst in one other case there was from the first a considerable degree of debility present. The first cases made their appearance at Valparaiso on the 20th of August, when four were placed on the sick-list; on the 21st, four; on the 22nd, eight; on the 23rd, eight; on the 24th (the day after leaving Valparaiso for Coquimbo, when the weather had become fine and clear), only four additions; next day, the 25th, the date of our arrival at Coquimbo, only one, and the last case was entered. I ought to have mentioned, that about a week or two before leaving Valparaiso, the weather, which is generally wet and muggy for a few weeks at this season, was unusually so this year.

"The treatment consisted simply in keeping the men warm and dry; attending to the state of the bowels, and relieving the most urgent symptoms, by diaphoretics, cough mixtures, and gargles. Few medicines were really necessary, and I believe that the removal of the ship from the (at the time) damp atmosphere of Valparaiso, to the dry, bracing air of Coquimbo, or La Serena, as the natives call it, prevented the spreading of the complaint among the ship's company; certainly its cessation was coincident with our arrival at the latter place. No officer was attacked except the boatswain, whose cabin, it may be mentioned, is in close proximity to the after lower deck mess on the port side. Only two cases were under treatment for more than eight days, the majority being only four or five. The store-ship, Nereus, was at Valparaiso when we left, but it appears that her small crew did not suffer at all. The complaint was somewhat prevalent on shore at the time, although not in the

* Surgeon James Martin, M.D.

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the form of an epidemic. Some time previous to this, the Topaze, I am told, had a very large sick-list from an affection similar to this when stationed at Callao, fourteen or fifteen hundred miles to the northward, and curiously enough many months afterwards, on our arrival at Honolulu, Sandwich Islands, I learnt that about this very time it was very prevalent also in this locality, which is situated about 22° north of the line, more than six thousand miles distant from Valparaiso."

In the Sutlej, in which there were 133 cases of catarrh, ninety-eight occurred in the Christmas quarter of the year, when the vessel was at Esquimault. With reference to them, the surgeon says:—

"Complaints affecting the organs of respiration occurred chiefly at Esquimault in the months of October, November, and December, and were obviously the result of climatic and atmospheric changes. The past summer was exceedingly fine and dry, and very little rain fell; but in October the summer broke up, and simultaneously with a marked diminution of temperature incessant rain set in, which continued almost uninterruptedly for upwards of a whole month, with a dark, cloudy, overcast atmosphere. The result was that the men were frequently wet; their clothing, bedding, and every porous object, as well as between decks, became saturated with damp and moisture. No effort was effective in preserving either the ship, or the men's clothing moderately dry under the all-pervading damp which penetrated everything, and the direct effect was an outbreak of catarrh in an epidemic form among the crew. It set in gradually, at the onset only one or two cases occurring daily, but steadily increasing until eight or nine daily entries on the sick-list became common. The symptoms varied but little from the ordinary sporadic complaint. The fever was always acute in the early stage, of the character termed synocha, and never of the low nervous type which characterises influenza. Nearly every case evinced a tendency to inflammation of some part of the pulmonary organs, and a large proportion did actually and seriously affect the bronchial passages and pulmonary tissues, and throughout the attack, confined chiefly to the month of November, there were ninety-eight cases of catarrh, eleven of bronchitis, and four of pneumonia entered on the sick-list.

"The measures adopted for the arrest of the epidemic were those indicated by the nature of the exciting cause; ventilation and artificial desiccation of the decks, and the personal clothing of the men; but it must be owned that amidst continual rain, and a close muggy atmosphere, artificial desiccation on board ship, is but sparingly successful, and accordingly but little effect was produced until the excessive rain subsided, and a drier state of the atmosphere supervened."

In the Topaze, eighty-three cases of what is termed influenza, and twenty-three of catarrh, occurred during the Michaelmas

Michaelmas quarter of the year; and four of influenza, and fifty-two of catarrh, in the Christmas quarter, the vessel during this time being employed between Callao, Coquimbo, and Valparaiso. The information furnished by the returns from the ship in connection with these cases, is of the most meagre character. With reference to the influenza, it is stated that the symptoms varied so much as to be almost inappreciable in the milder cases, but that almost invariably there was a peculiar thrilling pulse, oppression at the epigastrium or across the chest, deranged digestion, muscular pain in the region of the diaphragm, gravedo and cynanche more common than coryza, and a great tendency in the cases to relapse.

In Table VI. it will be observed, that twenty-six cases of inflammation of the lungs and pleura occurred in the Sutlej; of these, nineteen were cases of bronchitis, and seven pneumonia, the great majority occurring during the prevalence of the epidemic catarrh noticed above. Each case of bronchitis was, on an average, between eight and nine days under treatment, and each case of pneumonia about three weeks.

Diseases of the Heart and Bloodvessels.—There was a considerable increase in the ratio of cases, and of invaliding under this head, compared with the preceding year, but the death-rate was lower. Twenty-seven cases of functional or organic disease of the heart were under treatment, of which twelve were invalided. In very few of the invalided cases is there any history given of the patients having previously suffered from rheumatism.

A case of aneurism appears in the return from the marine detachment at San Juan; it occurred in the person of a private, who presented himself, complaining of general debility, and slight pain in the chest. On physical examination of the region of the heart, a loud coarse musical murmur was distinctly audible over the anterior part of the chest, particularly along the course of the arteries, and accompanying each diastole of the heart; this murmur appeared to supplant the healthy sounds of the heart, as they could not be distinguished. A strong pulsation was felt below the ensiform cartilage; the respiration was quite healthy; and the man had never complained of any symptom connected with the heart, before. He was of a sallow unhealthy appearance, and as there appeared to be some serious lesion of the heart or great vessels, he was retained on the sick-list until an opportunity

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of sending him to England occurred, he having completed his time.

A fatal case of aneurism occurred in the Mutine, in the person of an officer, who was placed on the sick-list on the 23rd of October, complaining of pain all over the body, and more especially in the shoulders, and of an occasional slight attack of palpitation; he had been looking pale and ill for some time previously, and stated that he had been losing flesh to a great extent. On examination, a large tumour could be seen and felt, situated in the epigastric region, somewhat to the left side; he was at once ordered perfect rest, a gentle laxative was prescribed, and he was carefully watched; towards the evening he complained of some considerable increase of pain in the region of the stomach, and there was a slight tendency to vomiting. An anodyne was administered, but it had no effect, and he died suddenly early in the following morning. The report of the most-mortem examination of the body by the surgeon of the vessel, is as follows:—

"*Body.*—Moderately well nourished, but pale, blanched, and of a waxy appearance; rigor mortis not established.

"*Heart.*—Covered with fat, and there was some effusion into the pericardium; otherwise this organ was healthy.

"*Abdomen.*—Two large clots of blood were found in the cavity of the peritoneum, one on each side, and fluid blood diffused among the abdominal viscera. On further examination it was found to have proceeded from the bursting of a large aneurism of the descending aorta, which implicated the whole of that vessel from the arch as far down as the third lumbar vertebra."

Diseases of the Alimentary Canal.—There was a diminution in the ratio of cases coming under this head, compared with the preceding year, equal to 31·8 per 1,000 of mean force; the invaliding ratio, however, was higher, and there was one death, while, in 1865, there was no mortality from this cause.

The fatal case referred to was one of disease of the pancreas, which occurred in the person of a leading seaman of the Clio, aged 27, who was placed on the sick-list at Esquimault, complaining of headache, pain in the right hypochondrium, and some cough; his skin was hot and dry; these symptoms increased, and on the 19th vomiting and general irritability of the stomach set in. On the 20th the sickness continued, and he complained of pain in his right side, and over the epigastrium; all food and liquids were vomited

about

about fifteen minutes after partaking of them. Chloroform in mucilage was ordered, to allay the gastric spasms, and a blister applied over the epigastrium. On the 21st and 22nd the vomiting continued, but it was somewhat checked on the 23rd, his diet at that time being reduced to an occasional spoonful of milk. On the 25th the pain was more constant, and he derived great relief from a pill containing three grains of rhubarb, and one of muriate of morphia, taken twice daily; his pulse, however, was weak, his lips bloodless, and his face pale. From the 28th of January to the 2nd of February, he appeared to be improving steadily under the influence of the sesquichloride of iron; but on the latter date, vomiting recurred with increased violence, and accompanied with much straining, the vomited matters being dark-coloured, grumous-looking, and streaked with blood. On the 7th of February, vomiting again ceased, and not having recurred, he was, on the 11th, discharged to duty at his own urgent request. On the 13th, however, it recurred again with greater violence, and continued of greater or less severity until the 27th, when it became complicated with urgent diarrhœa and tenesmus; there were eight stools of a clayey colour, in twenty-four hours. On the 2nd of March the diarrhœa had subsided, and on the 4th some castor oil was prescribed as a laxative. On the 5th, vomiting returned with great violence, and there was a recurrence of diarrhœa on the 8th. On the morning of the 13th, the surgeon says:—

"For the first time he felt so poorly as not to be able to appear at the morning visit. During the night he had frequently vomited, and he complained of a burning pain in his stomach. At his own request I determined to send him to hospital, and while occupying himself with some necessary preparations, at 12.55 p.m. he was attacked with syncope, which was followed by a kind of epileptic seizure. This lasted about fifteen minutes, during which time his breathing was very laborious, his pupils were dilated, and his pulse full and soft. An approach to consciousness was made at 1·30, but he fell into a drowsy condition resembling coma. His hands and feet were warm, but respiration was so slight as to be almost inappreciable. A little milk and brandy was swallowed from time to time, and consciousness returned at 3 p.m., but in a few minutes he was seized with a convulsion resembling epilepsy. He frothed at the mouth, and his veins became swollen and turgid, while his pulse was as low as 45. A lancet was plunged into a vein in the arm, and twelve ounces of blood rapidly withdrawn. His pulse first rose to 80, and then beginning to fail the wound was closed, the convulsive seizure passed away, and he lapsed into the same semi-comatose condition he had before been in. At 6 p.m. he was

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again sensible, and said that he was free from pain. He remained in this condition until 9 p.m., when a violent convulsion ensued, and for a few minutes he was pulseless. Brandy and milk in spoonfuls at short intervals were administered. Most of the night he was sensible, but his extremities were cold. His tongue was dry, black, and parched; his lips were pale, and his face had a sunken waxy appearance. His stools were passed involuntarily, but his pulse kept pretty steadily at 80, though very weak, and occasionally thready. On the morning of the 14th he seemed inclined to sleep, and answered questions rationally, but with difficulty, and his pupils, which had before been dilated, were now somewhat contracted.

"Milk and brandy were continued, and three times during the day he passed some pale-coloured stools. No fit was experienced this day, and he seemed slightly to rally and gain strength; and on the following day (the 15th of March) at 10 a.m. he was removed to the hospital at Esquimault. He did not seem to suffer during the removal, but at 3.50 p.m., on the day of his arrival at the hospital, he expired. The following is the report of the post-mortem examination of the body, which was held eighteen hours after death.

"On opening the cavity of the peritoneum, the stomach and small intestines were found to be a good deal distended with flatus; the liver was enlarged, and a good deal congested; the gall-bladder was also considerably distended with inspissated bile, which pressed against the stomach. The pancreas, especially at its head, was much enlarged, and presented a hard fibrous substance, similar, under the microscope, to that described by Rokitansky as 'cysto-sarcoma.' The left supra-renal capsule presented a similar character. Both kidneys were small and pale, but the papillæ and striæ seemed healthy. On opening the stomach some softening from the effects of inflammation were seen, and some remains of the coffee-ground vomit existed, as also some red spots, from which apparently blood had exuded, but no traces of ulceration or perforation were present. The right lung, in addition to the hypostatic congestion, was found to be congested, and almost adherent throughout, but these adhesions seemed to be of long standing. The spleen and heart were sound, and the muscular condition of the body was good. The enlarged, hardened condition of the head of the pancreas had apparently contracted or obliterated its own duct, and the ductus communis causing dilatation of the gall-bladder, whilst its great size pressing on the portal vessels and stomach acted as a mechanical obstructive."

Diarrhœa.—There was a great reduction in the ratio of cases under this head compared with the preceding year. With reference to the prevalence of diarrhœa at Valparaiso, the surgeon of the Sutlej says:—

"A disordered state of the bowels is of frequent occurrence at Valparaiso, so much so, indeed, that few ships escape it on their first arrival

arrival there, and during the months of February and March we had a large proportion of diarrhœa cases, many of them of a severe and troublesome character, attended with copious and persistent hæmorrhage from the bowels.

"The exciting cause of the diarrhœa has frequently been the theme of discussion among surgeons of ships visiting the port, and, as usual, great difference of opinion obtained regarding it; one attributing it to mere change of climate, as was advocated by the surgeon of a ship just arrived from Callao, where the temperature was higher and more equable. Accordingly he attributed the outbreak of bowel complaint with which his ship was visited to the occasional chills and increased variableness of the Valparaiso climate; but as the Sutlej, which was now suffering much, had only arrived from the parallel of 40° south, where the temperature was both lower and more variable than that of Valparaiso, such an explanation was untenable, and perhaps still more so when we experienced the same on arriving from the Straits of Magellan, where the temperature was both low and variable also. The water supply was another source of suspicion, some alleging that it was saline and brackish. An idea that the reservoir was subject to contamination from the town sewage seemed at first the more plausible explanation, but a closer inspection served only to explode both their surmises—the source and quality of the water supplied to the ships were unimpeachable.

"My own opinion, which I submit is supported by the closest observation, is that the malaria arising from the filthy condition of the town is the sole cause of the bowel complaints on board ship in the harbour of Valparaiso. On a previous occasion, in connection with this subject, I had occasion to remark on the formation of the town, when I pointed out that the quebradas (deep ravines) which separate the various parts of the town are the depositories of the offal, both animal and vegetable matter, mixed with human ordure, all lying throughout the dry season in a decomposing state, till the rain sets in and converts the quebradas into rapid torrents washing the filth into the sea.

"During the dry season (January, February, March, and April) strong sea breezes supply, imperfectly, the lack of water; blowing over the elevated ridge which forms the bay, they sweep down the deep ravines, drying up the decomposing masses, and depositing the malaria far into the harbour. A close observation of these phenomena supplies the clearest proof that the malaria from the town is the cause of the bowel complaints; for the temporary cessation of the winds, which does occur at times, is followed by stagnation and accumulation of the malaria, and consequently by much sickness, diarrhœa, and gastric fever in the town population; and it is a matter of notoriety that the re-establishment of the winds restores the health of the town, but at the expense of the shipping; for, although it is not so well known, I have always observed that the fiery breezes off the town, which always succeed a protracted calm, are the harbingers of sundry cases of diarrhœa on board the newly-arrived ships."

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The surgeon of the Leander also bears similar testimony to the evil effects of the land wind at Valparaiso in inducing diarrhœa among the crews of the vessels in harbour.

Diseases of the Genito-Urinary Organs.—There was an increase in the ratio of cases coming under this head compared with the previous year, equal to 33·4 per 1,000 of mean force, which was altogether attributable to the greater prevalence of syphilitic disease. The increase also extends to the invaliding rate, but the ratio of mortality is almost precisely the same as in 1865; as heretofore Valparaiso appears to have been the port where the largest amount of syphilis was contracted. The vessels that suffered most were the Leander, Mutine, Sutlej, and Topaze.

In the Leander there were fifty-four cases of primary syphilis, four of secondary syphilis, and seven of gonorrhœa. The surgeon remarks in reference to these cases:—

"Under the head of syphilitic disease was somewhat over a seventh of our entries of cases, and a third of our days' sickness, and all it may be said owing to contagion at Valparaiso. The disease presented itself in various forms; the true Hunterian chancre, round, and excavated, with indurated edges; and the soft spreading suppurating sore. The latter form was the more troublesome, and produced more cases of bubo. It is a very lamentable fact that the Chilian authorities, controlled I have heard by the clergy, seem to make no effort to check this direful malady, or to give relief to the unfortunate suffering females, who, struggling against poverty and hunger, continue to sow broadcast the seeds of misery as their only hope of existence. Many of the buboes were exceedingly intractable, series after series forming. Syphilitic cachexia was also of frequent occurrence. In the majority of cases the mercurial plan of treatment was adhered to, and I believe with undoubted success both as to healing the primary disease, and giving security against the secondary affections. In the cases in which these latter appeared, the patients had not been submitted to mercurial treatment."

The surgeon of the Mutine remarks, with reference to twenty-three cases of syphilis and eleven of gonorrhœa which occurred in that vessel:—

"No examples of kidney or bladder affection were entered on the list, but the number of venereal cases this year more than doubled that of 1865, or in the proportion of thirty-four to fifteen. With the exception of two cases of gonorrhœa and one of syphilis, all those of the present Return were contracted at Valparaiso during the Michaelmas, and first month of the Christmas quarters, when the men

men had a great deal of leave. In looking at the table, the total days' sickness will be found to be very largely increased from these diseases, which amount for quite one-fifth of the whole number. The circumstances which to a great extent retarded the recovery of these complaints was that the majority of them (even the simplest form of chancre) were almost invariably accompanied by a bubo, in one or both groins, which, notwithstanding all efforts of treatment to the contrary, generally suppurated, thus pointing to a probability of a prevalence of the infecting over the non-infecting sore. I am inclined to think also that the difference and mixture of races to be met with in Valparaiso may partly be the cause of venereal buboes being so common. However that may be, it is certain that the restraints upon prostitution, both in Valparaiso and Santiago are few and slender, whole districts of both towns being apparently set apart for the purpose. I am informed by a medical man, a German, in practice at Valparaiso, that more than 75 per cent. of the natives suffer from syphilis in some form or other, inherited or acquired. If this is so it shows that there are other countries besides England where the restrictions of a Contagious Diseases Bill might be instituted with advantage. I have already alluded to the great prevalence of venereal complaints at Tahiti also, where we arrived in December and remained a week. Our men were not allowed leave on that occasion, but three bad attacks occurred among the gun-room officers."

There were twenty-five cases of primary syphilis, twelve of secondary syphilis, and six of gonorrhœa in the Sutlej, with reference to which the following remarks are made by the surgeon of the ship:—

"It is to the commercial capital of Chili, Valparaiso, that we owe chiefly all we suffered from venereal disease. Our annual visit to the South usually supplied cases for the year, besides importing an amount of the poison to Vancouver's Island, from whence we should be sure to receive fresh instalments. The total number of cases entered in the year was only twenty-five, that is of primary disease, and that included all sores on the genitals resulting from sexual intercourse. I was compelled to adopt that method, feeling it would lead to some confusion, and greater inaccuracy to attempt to discriminate between the infecting and non-infecting sore from the difference of appearance in their primary manifestations. Indeed, I am convinced that it is as yet premature to attempt such classification on board ship, though I hope it may be, ere long, possible to pronounce with certainty on any venereal sore by its physical characters, whether it be such as produce constitutional syphilis or otherwise. With the view of eliciting these distinctions, if practicable, I kept a list of twenty-two syphilitic cases in a tabular form, showing side by side the character of the primary manifestations, together with those of the secondary symptoms, when any such followed. A copy of the list, and the results up to the end of the year, is given in the annexed Table.

"A TABULAR LIST of Syphilitic Cases, showing the character of the Primary Manifestations, and the Results.

No.	Age.	When put on List.	Character of Primary Sore.	Character of Secondary Symptoms, if any, and Date of Appearance.
1	22	13 February	A small soft sore of six days' duration, on the inner surface of the prepuce. Induration and swelling of the left inguinal glands.	Scaly copper-coloured eruption on the 22nd of June, accompanied by swelling of the cervical glands, tonsils, and stomatitis. Constitutional cachexia.
2	24	22 „	Two sores of mixed character on the inner surface of the prepuce, of seven days' duration; free from complication.	No secondary symptoms.
3	33	9 March	Several soft sores on the corona glandis and sulcus; free from complication.	No secondary symptoms.
4	32	12 „	Sundry small sores of doubtful duration on the glans; balanitis; indurated, fissured, and phymosed prepuce.	No secondary symptoms.
5	21	16 „	Several soft sores on glans and prepuce of indefinite duration. Glands of right groin inflamed and suppurating.	No secondary manifestations excepting a very protracted bubo.
6	21	19 „	Three indurated and irritable sores round the orifice of the prepuce. Phymosis. Swelling of the inguinal glands.	Inguinal glands suppurated, requiring protracted treatment. No true secondary symptoms.
7	28	30 „	A very typical indurated sore of ten days' duration on the inner and dorsal aspect of prepuce. Congestion and induration of inguinal glands.	No secondary symptoms whatever.
8	29	30 „	An indurated sore of ten days' duration on the inner surface of the prepuce. Inguinal glands congested and indurated.	No secondary symptoms. This and the preceding were very analogous; both indurated non-secreting chancres with hardness of the inguinal glands, very typical of the (supposed) infecting sore.
9	21	9 April	A mixed sore on the frænum and contiguous part of the glans, of uncertain duration. Inguinal gland[illegible] glands congested.	Excruciating rheumatism set in on the 1st of June, and has been persistent. Swelling of cervical and mastoid glands. Tubercular cutaneous eruption on the 4th of September. General cachexia.
10	19	2 „	A slight sore on the prepuce without induration, but with inflammation and tenderness of the inguinal glands	Groins suppurated, and fœtious buboes formed, but there were no true secondary symptoms.
11	24	12 „	An indurated sore on frænum, followed by a soft ulcer on the thigh, and one on the root of the penis; the two latter appear the result of inoculation by the first.	Excruciating rheumatism supervened on the 27th of April, which has been very persistent. Congestion and swelling of the fauces, mastoid and cervical glands, but no distinct cutaneous eruption.
12	24	17 „	A mixed sore on the inner surface of the prepuce of a week's duration.	No secondary manifestations.
13	24	30 „	A mixed sore on prepuce. Swelling of inguinal glands.	No secondary manifestations.
14	25	23 „	An inflamed soft sore on the prepuce of about a fortnight's duration. Gonorrhœa; inguinal glands congested.	A scaly copper-coloured eruption over all the trunk and extremities on the 20th of June. Congestion of the cervical glands.

A Tabular List of Syphilitic Cases, &c.—*continued.*

No.	Age.	When put on List.	Character of Primary Sore.	Character of Secondary Symptoms, if any, and Date of Appearance.
15	23	26 April -	An indurated sore of ten days' duration on the fold of the prepuce. Phymosis. Gonorrhœa. Congestion of right inguinal glands.	No secondary symptoms.
16	17	27 „ -	A soft superficial sore on the fold of the prepuce: free from complication.	No secondary symptoms.
17	33	30 „ -	A soft sore on the outer surface of the prepuce, of a week's duration, without affection of the glands.	No secondary symptoms.
18	19	8 May -	A mixed sore on the inner surface of the prepuce, with phymosis and balanitis.	No secondary symptoms.
19	21	8 „ -	A deep hard sore on the frænum; sundry soft abrasions on the corona glandis.	No secondary symptoms.
20	26	25 August -	An indurated sore, of ten days' duration, on the prepuce. Glands of right groin inflamed and suppurating.	A tedious bubo. No secondary symptoms.
21	23	16 November	Three hardened sores, very typical, on the prepuce. Congestion and induration of inguinal glands in both groins.	So far, no secondary symptoms.
22	21	24 „ -	Sundry deep eroded sores on the prepuce, one having destroyed the frænum.	So far, no secondary symptoms.

"As already observed, the object proposed in the foregoing Table was a comparison of the primary venereal sores, with a view to determine whether any and what species of sore was productive of secondary symptoms; in fact, to ascertain what were the characteristic differences between the infecting and non-infecting sores; and I regret to say that very little positive information is procurable from the effort. It having been set forth by the latest and most distinguished syphilographers, that a non-secreting indurated chancre, with certain other concomitants, was the true and only sore, particular attention was paid, hoping to verify the approved opinion, and in two or three instances (Nos. 7 and 8) very well marked and typical sores came under observation; but as neither of them developed secondary symptoms, the information was only of a negative character. On the other hand, in certain cases (Nos. 1, 11, and 14) where little or less danger was anticipated, very severe and decided secondary symptoms ensued. In particular, No. 11 demands special notice, because of its bearings on a question (syphilitic auto-inoculability) which has provoked much discussion. In this case the patient was first affected with a partially indurated sore on the frænum, and a fortnight subsequently a chancroid formed on the thigh, where the diseased

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part of the penis habitually rested, and afterwards another on the root of the penis, both, with the best reason, believed to spring from the contagion of the first sore, a phenomenon now held to be incompatible with syphilis; but, notwithstanding, very severe and unequivocal secondary manifestations ensued in this case.

"It is not intended to place any undue importance or to dogmatize on such limited experience as this supplies; only it is hoped that, so far as they go, the cases may be useful, and it is believed that reports compiled in the same form, supplied from the varied resources of our service, might be available in solving a problem of vast importance, and in which information is still wanting."

There were thirty-three cases of primary syphilis and three of gonorrhœa in the Topaze, but no information of the slightest value is given in connection with them. They appear to have been chiefly contracted at Valparaiso.

Rheumatism.—There was a trifling decrease in the ratio of cases coming under this head, compared with the preceding year, and also in the invaliding rate.

Wounds and Injuries.—A man sustained a fatal fracture of the skull in a street fight at Valparaiso.

A man was found drowned at Tobago, but how he fell into the water is not known; another fell overboard from aloft and was drowned; and another who was drowned is supposed to have fallen off a pier.

Two suicidal deaths occurred in the squadron. In one instance a man, in a fit of jealousy, procured and swallowed four grains of strychnine. After committing this act he repented, and took an emetic in the hope of getting rid of the poison, but without avail. He died nine hours after swallowing it.

An officer who had been leading an intemperate life, and was under arrest for drunkenness, committed suicide by cutting his throat with a clasp-knife.

A man is reported to have died asphyxiated. He was brought on board insensibly drunk, and while in this state was suddenly observed to become black in the face. Respiration ceased, and was attempted to be artificially excited, but without success. The post-mortem examination of the body did not show any mechanical obstruction to respiration.

The total number of deaths was twenty-one, which is in the ratio of 8·7 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 1·5 per 1,000.

Invalided.

Pacific Station.

Invalided.—Four persons were invalided from the sequelæ of fever; five for diseases of the brain and nervous system; fourteen for diseases of the respiratory organs, eleven of whom were phthisical; fourteen for diseases of the organs of circulation; two for diseases of the alimentary canal; two for disease of the liver; ten for diseases of the genito-urinary organs; fourteen for rheumatism; one for gout; one for diseases of the bones and joints; three for diseases of the special senses; two for diseases of the skin and cellular tissue; five for wounds and injuries of various kinds; and two for hernia; making the total number invalided seventy-nine, which is in the ratio of 33· per 1,000, and an increase, compared with the preceding year, equal to 1·5 per 1,000.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	407	170·2	4	1·6	2	·8
Intermittent Fever	50	20·9	—	—	—	—
Small Pox	1	·4	—	—	—	—
Scarlatina	31	12·9	—	—	—	—
Disease of the Brain	2	·8	1	·4	1	·4
Apoplexy	1	·4	—	—	1	·4
Epilepsy	8	3·3	2	·8	—	—
Paralysis	2	·8	2	·8	—	—
Insanity	1	·4	—	—	—	—
Delirium Tremens	13	5·4	—	—	—	—
Neuralgia	17	7·1	—	—	—	—
Vertigo	7	2·9	—	—	—	—
Insolation	3	1·2	—	—	—	—
Inflammation of the Lungs and Pleura	46	19·2	3	1·2	3	1·2
Phthisis and Hæmoptysis	14	5·8	11	4·6	3	1·2
Influenza and Catarrh	600	251·	—	—	—	—
Cynanche	124	51·8	—	—	—	—
Asthma	5	2·	—	—	—	—
Disease of the Heart, Functional and Organic	27	11·2	12	5·	—	—
Hæmorrhoids	11	4·6	—	—	—	—
Varix	8	3·3	2	·8	—	—
Aneurism	2	·8	—	—	1	·4
Disease of the Stomach and Bowels	7	2·9	—	—	1	·4
Dysentery	16	6·6	1	·4	—	—
Diarrhœa	171	71·5	1	·4	—	—
Constipation and Colic	41	17·1	—	—	—	—
Disease of the Liver	12	5·	2	·8	—	—
Jaundice	6	2·5	—	—	—	—
Splenitis	1	·4	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	8	3·3	1	·4	—	—
Syphilis, Primary	168	70·2	—	—	—	—
Do. Secondary	55	23·	4	1·6	—	—
Gonorrhœa	45	18·8	1	·4	—	—
Orchitis	47	19·6	1	·4	—	—
Stricture	14	5·8	3	1·2	1	·4
Incontinence of Urine, &c.	1	·4	—	—	—	—
Rheumatism	256	107·1	14	5·8	—	—
Gout	9	3·7	1	·4	—	—
Disease of the Bones and Joints	10	4·1	1	·4	—	—
Inflammation of the Eyes	27	11·2	1	·4	—	—
Amaurosis and Cataract	2	·8	2	·8	—	—
Otitis and Deafness	8	3·3	—	—	—	—
Erysipelas	5	2·	—	—	1	·4
Bubo (*Symp.*)	28	11·7	—	—	—	—
Phlegmon and Abscess	699	292·4	—	—	—	—
Ulcer	222	92·8	2	·8	—	—
Psora	9	3·7	—	—	—	—
Eruptions, &c.	29	12·1	—	—	—	—
Dyspepsia and Debility	132	55·2	—	—	—	—
Dropsy	5	2·	—	—	—	—
Worms	10	4·1	—	—	—	—
Headache	8	3·3	—	—	—	—
Wounds and Injuries	705	294·9	4	1·6	1	·4
Burns and Scalds	29	12·1	1	·4	—	—
Hernia	4	1·6	2	·8	—	—
Drowned	—	—	—	—	3	1·2
Asphyxia	1	·4	—	—	1	·4
Suicide	2	·8	—	—	2	·8
TOTAL	4,172	1745·6	79	33·	21	8·7

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE, and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	4,667	470	5,137	14·	5·8
Intermittent Fever - - -	323	- -	323	·8	·3
Small Pox - - - -	1	45	46	·1	—
Scarlatina - - - -	166	679	845	2·3	·9
Disease of the Brain - -	24(	114	138	·3	·1
Apoplexy - - - -	1	- -	1	—	—
Epilepsy - - - -	25	- -	25	—	—
Paralysis - - - -	35	124	159	·4	·1
Insanity - - - - -	20	- -	20	—	—
Delirium Tremens - - -	107	4	111	·3	·1
Neuralgia - - - - -	104	13	117	·3	·1
Vertigo - - - - -	54	- -	54	·1	—
Insolation - - - -	106	- -	106	·2	—
Inflammation of the Lungs and Pleura - - - -	697	523	1,220	3·3	1·3
Phthisis and Hæmoptysis -	264	463	727	1·9	·7
Influenza and Catarrh - -	3,898	28	3,926	10·7	4·4
Cynanche - - - - -	750	- -	750	2·	·8
Asthma - - - - - -	52	- -	52	·1	—
Disease of the Heart, Functional and Organic - - -	556	242	798	2·1	·8
Hæmorrhoids - - - -	100	12	112	·3	·1
Varix - - - - - -	98	- -	98	·2	—
Aneurism - - - - -	7	- -	7	—	—
Disease of the Stomach and Bowels - - - -	171	76	247	·6	·2
Dysentery - - - -	264	549	813	2·2	·9
Diarrhœa - - - -	852	183	1,035	2·8	1·1
Constipation and Colic - -	119	- -	119	·3	·1
Disease of the Liver - -	237	307	544	1·4	·5
Jaundice - - - - -	127	- -	127	·3	·1
Splenitis - - - - -	12	- -	12	—	—

Table, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d*.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	94	40	134	·3	·1
Syphilis, Primary	5,003	1,248	6,251	17·1	7·1
Do. Secondary	1,084	235	1,319	3·6	1·5
Gonorrhœa	590	23	613	1·6	·6
Orchitis	891	89	980	2·6	1·
Stricture	228	332	560	1·5	·6
Incontinence of Urine, &c.	5	127	132	·3	·1
Rheumatism	2,953	1,092	4,045	11·	4·6
Gout	159	159	318	·8	·3
Disease of the Bones and Joints	174	-	174	·4	·1
Inflammation of the Eyes	204	142	346	·9	·3
Amaurosis and Cataract	23	63	86	·2	—
Otitis and Deafness	30	-	30	—	—
Erysipelas	113	-	113	·3	·1
Bubo (*Symp.*)	828	539	1,367	3·7	1·5
Phlegmon and Abscess	6,169	459	6,628	18·1	7·5
Ulcer	5,020	1,248	6,268	17·1	7·1
Psora	130	140	270	·7	·2
Eruptions, &c.	565	55	620	1·6	·6
Dyspepsia and *Debility*	986	412	1,398	3·8	1·5
Dropsy	70	-	70	·1	—
Worms	27	-	27	—	—
Headache	20	-	20	—	—
Wounds and Injuries	7,256	966	8,222	22·5	9·4
Burns and Scalds	318	105	423	1·1	·4
Hernia	136	-	136	·3	·1
TOTAL	46,913	11,306	58,219	159·5	66·7

Table, No. 3.

Showing the Number Invalided from each Ship employed on the Pacific Station.

CAUSE of INVALIDING.	Alert.	Clio.	Columbine.	Leander.	Malacca.	Mutine.	Nereus.	Scout.	Shearwater.	Sparrowhawk.	Sutlej.	Topaze.	Total.
Continued and Remittent Fever	–	4	–	–	–	–	–	–	–	–	–	–	4
Inflammation of the Brain	–	–	–	–	–	–	1	–	–	–	–	–	1
Epilepsy	–	–	–	1	–	–	1	–	–	–	–	–	2
Paralysis	1	–	–	–	–	–	–	–	–	–	–	1	2
Inflammation of the Lungs and Pleura	–	2	–	–	–	–	–	–	–	–	1	–	3
Phthisis and Hæmoptysis	–	1	1	1	–	1	–	3	1	–	3	–	11
Disease of the Heart, Functional and Organic	1	2	1	1	1	–	–	3	1	–	2	–	12
Varix	–	–	–	–	–	–	–	2	–	–	–	–	2
Dysentery	–	–	–	–	–	–	–	1	–	–	–	–	1
Diarrhœa	–	–	–	–	–	–	–	1	–	–	–	–	1
Disease of the Liver	–	–	1	–	–	–	–	–	1	–	–	–	2
Inflammation of the Kidneys and Bladder	–	–	–	–	–	–	–	a1	–	–	–	–	1
Syphilis, Secondary	1	–	1	–	1	–	–	–	–	1	–	–	4
Gonorrhœa	–	–	–	–	–	1	–	–	–	–	–	–	1
Orchitis	–	–	–	–	–	–	–	1	–	–	–	–	1
Stricture	–	–	–	–	–	–	–	–	2	1	–	–	3
Rheumatism	–	3	4	–	3	–	–	1	1	–	2	–	14
Gout	–	1	–	–	–	–	–	–	–	–	–	–	1
Diseases of the Bones and Joints	–	–	–	1	–	–	–	–	–	–	–	–	1
Inflammation of the Eyes	1	–	–	–	–	–	–	–	–	–	–	–	1
Amaurosis and Cataract	–	–	–	–	–	–	–	–	1	–	1	–	2
Ulcer	–	1	–	–	–	–	–	1	–	–	–	–	2
Wounds	2	1	–	–	–	–	–	1	–	–	–	–	4
Hernia	–	–	–	–	–	–	–	1	–	1	–	–	2
Burns	–	–	–	–	–	–	–	–	–	–	1	–	1
Total	6	15	8	4	5	2	2	16	7	3	10	1	79

a Diabetes.

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship employed on the PACIFIC STATION.

CAUSE OF DEATH.	Alert.	Clio.	Leander.	Mutine.	Scout.	Shearwater.	Sparrowhawk.	Sutlej.	Topaze.	TOTAL.
Continued and Remittent Fever	–	–	–	–	–	–	–	–	2	2
Disease of the Brain	–	–	–	–	–	–	–	1	–	1
Apoplexy	–	–	–	–	–	–	1	–	–	1
Inflammation of the Lungs and Pleura	–	1	–	–	1	–	–	1	–	3
Phthisis	–	–	–	–	1	1	–	1	–	3
Aneurism	–	–	–	1	–	–	–	–	–	1
Disease of the Stomach and Bowels	–	1	–	–	–	–	–	–	–	1
Stricture	–	–	–	–	–	–	–	*c* 1	–	1
Erysipelas	1	–	–	–	–	–	–	–	–	1
Wounds and Injuries	–	–	–	1	–	–	–	–	–	1
Drowned	–	–	–	1	1	–	1	–	–	3
Suicide	–	–	*a* 1	*b* 1	–	–	–	–	–	2
Asphyxia	–	–	–	–	–	–	–	–	1	1
TOTAL	1	2	1	4	3	1	2	4	3	21

a Poison. *b* Cut-throat. *c* In Gunboat "Forward."

TABLE, No. 5.

SHOWING the Names of the Ships; the Average Complements, &c.; the Number of Cases; the Total Number of Days' Sickness on Board; the Average Number of Men Sick Daily in each Ship; and the Number discharged to Hospital.

S. C. Station Changed.

Rate, &c.	NAMES of SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.	Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number discharged to Hospital.
Fourth Rate -	Leander - S.C.	Sheerness -	14 April 1863	39	2,760	S. 400	1 Jan. to 30 June	465	235	356	4,319	11·8	50·2	17
	Sutlej - - -	Portsmouth	20 Sept. 1862	35	3,066	S. 500	Year - -	540	540	721	9,042	24·7	45·7	31
	Topaze - - S.C.	Devonport -	26 Jan. 1866	31	2,659	S. 600	1 July to 31 Dec.	485	245	484	6,297	17·2	70·2	16
Sixth Rate -	Clio - - -	Sheerness -	6 July 1864	22	1,472	S. 400	Year - -	245	245	713	8,882	24·3	99·2	26
	Malacca - S.C.	Portsmouth	13 Nov. 1865	13	1,034	S. 200	1 July to 31 Dec.	235	120	165	1,863	5·1	35·	13
	Scout - - -	Sheerness -	17 May 1865	21	1,462	S. 400	Year - -	270	270	508	4,348	11·9	44·	33
Sloop - -	Alert - - -	Devonport -	14 May 1863	17	751	S. 100	Year - -	165	165	218	1,880	5·1	30·9	20
	Columbine - -	Sheerness -	13 May 1863	4	672	S. 150	Year - -	90	90	177	1,920	5·2	57·7	11
	Devastation - S.C.	Woolwich -	12 Dec. 1861	6	1,058	P. 400	1 Jan. to 31 Mar.	145	35	56	360	·9	25·7	—
	Mutine - -	Woolwich -	7 April 1865	17	882	S. 200	Year - -	170	170	344	3,720	10·1	59·4	6
	Shearwater - -	Devonport -	13 Dec. 1862	4	669	S. 150	Year - -	115	115	245	1,836	5·	43·5	9
Gun Vessel -	Sparrowhawk -	Portsmouth	9 Mar. 1865	4	676	S. 200	Year - -	80	80	112	1,622	4·4	55·	8
Store Ship -	Nereus - -	Devonport -	15 Nov. 1843	6	1,094	—	Year - -	35	35	44	592	1·6	48·5	1
Marines - -	Marines (San Juan)	- - -	- - -	—	—	—	Year - -	45	45	29	354	·9	20·	—

TABLE, No. 6.

SHOWING the Number of CASES of all DISEASES and INJURIES in each Ship on the PACIFIC STATION.

DISEASE OR INJURY.	Alert.	Clio.	Columbine.	Devastation.	Leander.	Malacca.	Marines, San Juan.	Mutine.	Nereus.	Scout.	Shearwater.	Sparrowhawk.	Sutlej.	Topaze.	TOTAL.
Continued and Remittent Fever	22	329	6	-	7	1	-	1	-	11	28	-	-	2	407
Intermittent Fever	18	2	21	1	-	-	-	-	-	2	2	-	2	2	50
Small-pox	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Scarlatina	14	17	-	-	-	-	-	-	-	-	-	-	-	-	31
Disease of the Brain	-	-	-	-	-	-	-	-	2	-	-	-	-	-	2
Apoplexy	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Insanity	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
Epilepsy	-	4	-	-	-	-	-	-	1	-	-	-	3	-	8
Paralysis	1	-	-	-	-	-	-	-	-	-	-	-	-	1	2
Delirium Tremens	2	2	-	-	1	-	-	1	2	-	-	-	5	-	13
Neuralgia	-	-	1	-	1	-	-	1	-	6	4	4	-	-	17
Vertigo	-	1	-	-	-	-	-	-	-	4	2	-	-	-	7
Insolation	1	1	-	-	-	-	-	1	-	-	-	-	-	-	3
Inflammation of the Lungs and Pleura	2	4	-	1	-	1	-	3	-	4	1	2	26	2	46
Phthisis and Hæmoptysis	-	-	2	-	-	-	-	-	-	5	1	-	4	1	14
Cynanche	5	15	-	1	17	5	-	11	-	25	6	8	26	5	124
Influenza and Catarrh	2	73	18	7	45	27	1	55	6	35	30	6	133	162	660
Asthma	2	-	-	-	1	-	-	-	-	2	-	-	-	-	5
Disease of the Heart, Functional and Organic	3	5	1	-	1	2	-	4	-	3	1	-	6	1	27
Aneurism	-	-	-	-	-	-	1	1	-	-	-	-	-	-	2
Hæmorrhoids	-	1	-	-	-	-	-	3	2	2	-	-	1	2	11
Varix	-	-	3	-	1	-	-	-	-	1	-	-	3	-	8
Inflammation of the Stomach and Bowels	-	3	2	-	-	-	-	-	-	2	-	-	-	-	7
Dysentery	1	1	1	-	1	1	-	3	-	3	3	2	-	-	16
Diarrhœa	4	20	13	4	8	8	-	24	1	24	13	8	26	18	171
Constipation and Colic	6	1	4	4	1	3	-	5	-	2	2	-	11	2	41
Inflammation of the Liver	-	-	2	-	-	-	-	-	1	5	2	-	1	1	12
Jaundice	1	2	-	-	1	-	-	2	-	-	-	-	-	-	6
Splenitis	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Inflammation of the Bladder and Kidneys	-	2	-	-	-	-	-	-	-	-	-	-	6	-	8
Syphilis, Primary	4	9	5	-	54	1	1	23	4	5	1	3	25	33	168
Ditto - Secondary	7	6	12	-	4	5	-	-	-	-	-	9	12	-	55
Gonorrhœa	-	2	3	1	7	3	-	11	-	8	-	1	6	3	45
Orchitis	-	5	3	-	6	-	1	2	4	3	-	3	17	3	47
Stricture of the Urethra	-	-	3	-	1	-	1	-	2	-	2	2	3	-	14
Incontinence of Urine, &c.	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Rheumatism	7	29	5	9	17	11	6	25	4	31	18	24	53	17	256
Gout	5	8	1	-	-	-	-	-	-	-	-	-	-	-	9
Disease of the Bones and Joints	1	3	1	1	-	1	-	1	-	1	-	-	-	1	10
Inflammation of the Eyes	5	1	2	-	4	-	-	1	-	5	5	-	2	2	27
Amaurosis and Cataract	-	*a* 1	-	-	-	-	-	-	-	-	1	-	-	-	2
Otitis and Deafness	-	2	-	1	-	-	-	1	-	1	2	-	1	-	8
Erysipelas	1	-	-	-	-	-	1	-	-	1	1	-	1	-	5
Bubo (*Symp.*)	-	1	1	-	-	4	-	3	1	4	-	1	11	2	28
Phlegmon and Abscess	33	58	27	8	79	38	4	58	5	103	55	8	125	98	699
Ulcer	14	23	3	1	26	10	1	4	-	34	11	10	60	25	222
Psora	-	-	-	-	-	-	-	1	-	1	-	-	5	2	9
Eruptions, &c.	-	4	2	-	2	2	3	1	-	3	3	-	4	5	29
Dyspepsia and Debility	13	10	5	6	12	8	2	12	4	20	21	1	14	4	132
Headache, &c.	4	-	-	-	-	3	-	1	-	-	-	-	-	-	8
Dropsy	-	1	-	1	-	-	-	-	-	2	-	1	-	-	5
Worms	3	-	-	-	-	-	-	-	1	4	-	*b* 2	-	-	10
Wounds and Injuries	34	65	28	10	55	29	5	83	4	139	28	16	123	86	705
Burns and Scalds	3	5	2	-	2	-	1	2	-	4	2	-	5	3	29
Hernia	-	2	-	-	-	-	-	-	-	1	-	1	-	-	4
Suicide	-	-	-	-	1	-	-	1	-	-	-	-	-	-	2
Asphyxia	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
TOTAL	218	713	177	56	356	165	29	344	44	508	245	112	721	484	4,172

a Myopia. *b* Tænia.

WEST COAST OF AFRICA.

West Coast of Africa Station.

THE squadron on the West Coast of Africa in 1866, consisted of twenty-three vessels, comprising, one ship of the fourth-rate; one sloop; twelve gun-vessels; four steam-vessels; four store-ships; and one receiving ship. The returns from eleven of the vessels are for the whole year, and from the remainder for periods varying from one to nine months. The mean force corrected for time was 1,680, and the number of cases entered on the sick-list 3,474, which is in the ratio of 2067·8, being a decrease, compared with the preceding year, equal to 121· per 1,000. Of the vessels that were employed on the station during the whole year, the highest sick-rates were in the Vindictive, Greyhound, and Torch; the lowest in the Dromedary, Flora, and Espoir.

The daily loss of service from fever was in the ratio of 14·8 per 1,000; from diseases of the brain and nervous system, 1·8; of the respiratory organs, 3·8; of the heart and blood-vessels, 1·4; of the alimentary canal, 3·3; of the liver, ·3; of the genito-urinary organs, 7·3; from rheumatism, 5·8; diseases of the bones and joints, ·6; of the special senses, 1·1; of the skin and cellular tissue, 15·7; from diseases not classed, 4·4; and from wounds and injuries of various kinds, 9·7. The average number of men daily ineffective was, 121·2 which is in the ratio of 72·1 per 1,000 of mean force, being only 1·1 below the daily sick-rate of the preceding year.

Fevers.—There were 519 cases of fever of a continued or remittent type; thirty cases of yellow fever; eighty-seven of ague; and one of small-pox under treatment during the year; and of these, twenty-nine of primary fever, one of yellow

WEST COAST OF AFRICA STATION.

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low fever, and eight of ague were invalided; and five of primary fever, twenty-five of yellow fever, and one of ague terminated fatally. The average duration of each case of primary fever on board ship and in hospital was about thirteen days; of each case of yellow fever about seventeen days; and of each case of ague twenty days. The case of small-pox was fifty-eight days under treatment.

Continued and Remittent Fever.—There were twelve cases of primary fever in the Antelope. Of these one is classed as continued and the remainder as remittent. All the cases occurred during the Christmas quarter of the year, and the medical officer* gives the following account of them:—

"From the 1st of October to the 3rd of December no European visited the shore with the exception of five officers; of whom three made three or four visits, and on one occasion slept one night on the open beach beside the wreck of Her Majesty's ship Griffon. Of the three, one subsequently visited Lagos, and suffered much during the boat voyage from Little Popo and back. He and another of the three suffered from mild remittent shortly afterwards. Amongst the men eight cases occurred. The dates of the appearance of the above ten cases of remittent fever are:—

		Cases.	
Off Little Popo	6 November	1	Thirty-four days from Sierra Leone, and twenty-one days from arrival in the Bight.
" "	8 "	1	
" "	11 "	1	
" Aghwey	14 "	1	
" "	15 "	1	
" "	16 "	1	
At Jella Coffee	19 "	2	
On voyage to Ascension	20 "	1	
" "	22 "	1	
		10	

"Another case of remittent fever appears in the Nosological Returns, but did not belong to this ship, being a convalescent from Her Majesty's ship Vindictive for passage to Ascension Hospital.

"In three of the cases the remittent type was somewhat less marked than in the others. In two of these the different stages of the fever were very indistinctly marked, but the feverish exacerbations were more frequent, and the general febrile state lingered much longer than in the other cases; the resulting debility was also greater.

* Assistant-Surgeon J. S. Levis, M.D.

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greater. One of the latter was of phthisical tendency, and displayed some threatening of pulmonary disease during convalescence. I partly attribute the greater duration, and more enfeebling effects in these cases, to the fact that they were amongst my earliest cases, and were treated by small regular doses of quinine.

"In the other cases I adopted the mode so much recommended by all our best authorities, viz., that of administering, after free purgation, moderately large doses of quinine (twenty grains immediately, followed, generally, by five or three grain doses, or repeated if necessary), so as to produce some indications of cinchonism within the first two or three days, and without any anxious or mere routine regard to the stage or character of the fever; giving salines and diaphoretic medicines only in cases of very high pyrexia; in all supplying a free allowance of lime-juice or simple water (which was preferred by some to any other drink), and rice and soup for diet—giving no wine during the continuance of the fever excepting in cases of decided debility—and supplying stimulants freely during convalescence. Fortunately I have had to contend with none of the more distressing difficulties of the disease, such as severe irritability of the stomach, hiccup, delirium, or important visceral complications.

"In one, rather severe cinchonism was produced by the first dose of twenty grains. In the others no symptoms of cinchonism manifested themselves until the second or third day. In one only did I think it advisable to repeat the scruple dose in the evening of the second day. The resulting cinchonism was not great. In three cases doubtful complaints were made of deafness, or noise in one ear, and the quinine was stopped or reduced with no ill-effect.

"In each of the cases thus treated the fever remitted very decidedly within six or seven hours after the first dose—the subsequent exacerbations being very much milder and of short duration, and the fever subsided altogether on the third to fifth day. During the following fortnight the patients continued weakly; the pulse still moderately frequent, soft, and readily excitable; the appetite slowly increasing. Nearly all were able to resume their duties, and with advantage, within a month from seizure,—a result due not merely to medicine, nor to mildness of fever, but attributable also in great part to the vigorous constitution of most of the sufferers. Five of them during convalescence were placed in hospital at Ascension during our stay there; as we arrived with only ships' salt provisions, there was no hope of improvement for some days, and the ship was about to refit, and the men I expected would be greatly benefited as well as pleased by a lounge on shore."

There were fifty-nine cases of primary fever in the Bristol; ten of which are classed as remittent; one as typhoid, and forty-eight as febricula.

The case returned as typhoid appears to have been a very typical example of enteric fever, and is interesting from the fact that the man had not been out of the ship for five months,

months, and that no other cases had preceded his. It occurred in the person of a seaman who was placed on the sick-list at St. Helena on the 13th of June, complaining of rigors coming on every three or four hours, attended with headache, thirst, loss of appetite, a dry and pungently hot skin; creamy furred tongue, and a frequent pulse. He had a dull and listless aspect, and appeared indisposed to answer questions. He had felt unwell for the two previous days, but kept at work until the evening of the 12th. On the 14th, the bowels had been frequently moved, the stools being characteristic of the fever. There was pain in the left iliac fossa, with gurgling. Two suspicious oval rose-coloured spots appeared on the abdomen, disappearing under pressure. On the 15th, fresh spots appeared on the chest, and he was delirious during the night. On the 17th, the abdomen was tympanitic, and there was pain on pressure over the right iliac fossa, with gurgling. On the 19th, he was discharged to the military hospital at St. Helena, where the diarrhœa soon disappeared, the fever subsided, and he did well.

All the cases of remittent fever and twenty-one of febricula occurred during the Lady quarter of the year, and were so blended with cases of a very virulent form of yellow fever, which prevailed at the same time, that it seems advisable to leave the consideration of them until that epidemic comes to be noticed.

There were sixteen cases of primary fever in the Dromedary. They are classed as remittent, but they appear to have been of a somewhat ephemeral character, the average duration of each case being between five and six days.

There were twenty-six cases of primary fever in the Espoir, nine of which are classed as remittent, and seventeen as febricula. With reference to the former class of fever, the medical officer* says:—

"Of the nine cases entered, two occurred in the first quarter, while we were in the Bight of Benin, in one person, an officer. Both attacks, though mild, were characterised by gastric irritability and vomiting, severe headache, pains in the limbs and back, remissions and considerable debility. As the officer did not second the efforts

* Assistant-Surgeon J. Lambert.

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efforts directed towards his cure, he was invalided, and sent home for the restoration of his health. In the second and third quarters there were no cases of remittent fever. In the fourth quarter the remaining seven cases occurred. Three of these were in three men belonging to the captain's boat. One was in 1865, as well as this year, the subject of frequent febricular attacks. He was sent to hospital in October. The men belonging to the captain's boat are more than any others in the ship exposed to the causes of fever while waiting for the captain at night, in the Banana Creek, Loando, and other places. Of the twenty-eight febrile attacks in 1865, seven occurred in men belonging to the captain's boat. The six men who have belonged to the boat in 1865 and 1866 have been the subjects of thirteen febrile attacks, seven remittent and six febricula (two of the six have had no attacks), giving a total of 113 days' sickness; being one-third and one-fourth of the 426 total days' sickness from febrile diseases for the two years. The other three cases had been boat cruizing in the River Congo, and to the north and south of it. The seventh case in the fourth quarter occurred in the person of the ship's steward, who, at Loando, Congo, and other places, had been frequently on shore. The nine cases occurred in eight persons, and the average time on the list for each was between ten and eleven days."

The same officer remarks that much of the fever contracted on the South Coast was at Banana Creek, when coaling ship. He says:—

"Vessels very often go into the creek to coal, hog the ship's bottom, clean boats, &c., and remain there some time. I believe that in this ship, as in others, this has given rise to nearly all the cases of fever contracted in the Congo. Of course I exclude the cases in this ship contracted while watering was going on; but even in the boat cruising cases, I think many of them were contracted in Banana Creek. There is some talk of the contract for supplying coal being transferred to the factory of the African Company of Merchants at Kabenda. This would be a much better place to coal at, the men would be less exposed to malaria, and there is very good spring water to be had, and usually plenty of live stock and vegetables; these would be no slight additional advantages."

With reference to the issue of quinine, he says:—

"I have been at all times liberal in the use of quinine. The crew has been instructed, on feeling in the slightest degree ill, to go to the person doing duty as sick-berth attendant and get a dose of quinine, or to see me if necessary. To many of those who came to me complaining of slight feverishness and malaise I gave an aperient of sulphate of magnesia with five grains of sulphate of quinine, and directed them to have for a few days two grains of quinine morning and evening. This I feel certain has often checked what otherwise

otherwise would have turned out a slight febrile attack of four or five days' duration.

"During our stay in the rivers, in the end of 1865, I gave quinine in three-grain doses every morning to all the white men. We left the River Bonny on the 28th of December, having first entered the River Cameroon on the 18th, giving ten days' river work. For fourteen days from the 28th of December I continued giving the quinine every morning, and to some of the men who had been exposed more than others in boat work I gave it again in the evening also. I do not think there was a single case of sickness that could be attributed to our visit to the Cameroons, Old Calabar, and Bonny rivers. To the 10th of January the mean number daily sick was only three, one being an ulcer of the leg, and the others had nothing climatic for their cause. From the 11th of January to the 1st of November there was no general issue of quinine, although there were many partial issues to boats' crews and others who had been much exposed. One ounce was supplied to the officer in charge of the Dahomey, a prize barque sent from the Bight to St. Paul de Loando, with two officers and fourteen men. The whole of it appears to have been used by the men while on board the barque and on shore at Loando. No sickness occurred in the men who went in the Dahomey; but the officers, who had constantly lived on shore from their arrival till the 8th of May, about three weeks, had very indifferent health, having frequent slight febrile attacks, and one of them died of what appeared like yellow fever. At Loando I gave quinine twice a day to the crew of the captain's boat, and to the crew of the second cutter, as they were often on shore, the former with the captain and waiting for him in the evening, and the latter with the stewards and others about 5 a.m., and at other times. To others who had been much exposed I gave quinine once or twice a day. This I continued for the seventeen days we were in Loando Harbour. Although the issue of quinine was not general no case of climatic sickness occurred."

Remarking on the evil repute in which the West Coast of Africa is held as a station, he observes:—

"I do not think the coast, either ashore or afloat, nearly so unhealthy as it is constantly represented to be. On shore, from the little I have seen of it, Englishmen act very much as if they were at home, and indeed sometimes much more loosely; they smoke and imbibe alcoholic stimulants too much, and indulge especially in other forms of dissipation, which are all debilitating causes, preparing the way for the inroads of malaria. They do not look on themselves as belonging to another clime, and requiring special care and great attention to all those hygienic rules which apply with greater or less force wherever our race wanders, be it in the healthiest places possible, so far as external agencies are concerned, but which apply with especial force where, as here, many of the surrounding agencies are inimical to a healthy action of the animal functions. With temperance

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perance in diet, stimulants, and, generally, personal cleanliness as well as surrounding cleanliness, a free interchange of air in dormitories, exercise in the open air, and a moderate exposure to the sun, I think Europeans, fully grown and with sound constitutions, could remain many years on the coast, and return to Europe without much impairment of health. This would be very much more true could merchants choose their trading stations. For obvious reasons, at present the mouths of rivers are chosen, which above all are the most unhealthy places, especially as in many cases pure water cannot be had, and river water, often impure, is used for all purposes.

"Afloat, with little communication with the shore; no general leave at notoriously unhealthy places; using distilled water, or good spring water when it can be had without exposing the men to too much fatigue or malaria; avoiding river waters, and rarely entering them; a free use of quinine when required; doing away with boat cruising; more berthing accommodation; a liberal supply of fresh beef and vegetables, allowing the men to buy stock at the various places; less drill aloft, great attention to personal cleanliness, and the general cleanliness of the ship, I feel sure, putting aside the so-called infectious epidemics, which ought rarely to occur, the health of the cruisers would be as good as on any station, and better than on many."

There were thirty-one cases of primary fever in the Greyhound, of which one proved fatal. Of these, five are classed as continued, eight as remittent, and eighteen as febricula. The majority of the cases occurred during the Lady quarter of the year, and were attributable to exposure on the River Congo. Some of the cases of continued fever were evidently due to insolation.

There were thirty-three cases of primary fever in the Griffon, of which one proved fatal. They occurred in the Christmas quarter of the year, during which period the vessel went on shore between Little Popo and Aghwey, and was totally lost. It was to exposure, consequent upon the shipwreck, that these cases were referable. The history of their exposure, and the fever which followed upon it, is thus given by the medical officer* of the ship:—

"On the night of the 2nd of October H.M.S. Griffon went on shore between Little Popo and Aghwey. Shortly after going on shore (9 p.m.) a boat was manned by four volunteers to take the sick on shore. The boat, however, was washed on the beach by the

* Assistant Surgeon I. T. Comerford.

the surf before the sick could be got in. The four men who manned the gig were consequently obliged to pass the night on the beach without shelter, and without having had quinine. Three of them suffered subsequently from fever. At daybreak the sick were landed under my charge and conveyed to Little Popo, where I succeeded in finding good accommodation for them in the house of a coloured trader.

"During the day tents were got up on the beach for officers and men, and every arrangement made for securing their comfort that could be made under the circumstances. A few hundred yards inland was a lagoon, part of the great lagoon stretching from Jella Coffee and Lagos. The white men were kept as much as possible under cover, the work being done by hired natives and Kroomen. On the 5th, the senior officer ordered all the white men who could be spared to be sent afloat, in order to lessen their chances of getting fever. The order was immediately complied with, leaving on shore the officers, marines, stokers, and four seamen (to assist in keeping sentry). The Kroomen kept sentry in the daytime; the seamen at night. The stokers were kept with a view to taking the engines out; this, however, proved impracticable, so that they had no work to do. On the night of the 7th a tornado came on, accompanied by torrents of rain, which soaked through the tents, and partially wetted the men. On the 10th H.M.S. Pandora steamed up to Little Popo, when the sick, myself, and two subordinate officers embarked. On the 12th the engineers, stokers, and second master embarked. On the 15th the commander, lieutenant, gunner, and remainder of the men embarked. Twelve men went to H.M.S. Mullet; the remainder of the men, and all the officers, to the Pandora. The twelve men who went to the Mullet remained there till the 19th of November, when they again came under my charge. While there, one, a boy, died. On the 16th the Pandora left, and on the 17th arrived at Jella Coffee, when we were all discharged to H.M.S. Vindictive. Previous to our arrival on board the Vindictive the men remained apparently in good health. On the following day (the 18th) seven were put on the list with remittent fever. Cases now occurred in quick succession, until thirty men were under treatment; the total number of officers and men belonging to the Griffon, on board the Vindictive, being fifty-three. All the men who escaped fever were either those who had been sent afloat after being only two nights on shore, or those on the sick-list who were constantly under shelter in a comfortable house. Every officer and man who slept on shore for seven nights or more (on the beach) subsequently suffered from remittent fever. I have appended to this report a Table showing the number of days on shore, the date of leaving the shore, period of incubation, &c., and the state of each man when I gave up charge. Although all the cases are returned as remittent, only nine were pure or typical; the others were placed under the same heading, because at some time during their course they assumed the remittent type.

Number of Case.	Date of leaving Shore.	Date put on Sick-list.	Period of Incubation.	Disposal.			Number of Days on Shore.	Number of Days on List.	State of Health when disposed of.
				Duty.	Barracks.	Hospital.			
			Days.						
1	Oct. 5	Oct. 24	19	–	–	3 Dec.	2	40	Still suffering from remittent.
2	„ 10	„ 20	10	–	3 Dec.	–	7	44	Convalescent.
3	„ 10	„ 20	10	–	3 Dec.	–	7	46	Ditto.
4	„ 10	„ 28	18	–	–	6 Dec.	7	7	Suffering from remittent.
5	„ 10	„ 20	10	3 Dec.	–	–	7	44	Convalescent.
6	„ 10	„ 21	11	3 Dec.	–	–	7	43	Quite well.
7	„ 10	„ 18	8	–	–	3 Dec.	7	22	Suffering from ague.
8	„ 12	„ 20	8	3 Dec.	–	–	9	44	Quite well.
9	„ 12	„ 19	7	3 Dec.	–	–	9	45	Ditto.
10	„ 12	„ 20	8	6 Nov.	–	–	9	18	Ditto.
11	„ 12	„ 22	10	–	3 Dec.	–	9	42	Suffering from debility.
*12	„ 12	„ 18	6	–	3 Dec.	–	9	46	Convalescent.
13	„ 12	„ 23	11	–	3 Dec.	–	9	16	Quite well. To barracks with catarrh.
14	„ 12	„ 21	9	–	–	3 Dec.	9	43	Suffering from ague.
*15	„ 12	„ 18	6	–	3 Dec.	–	9	46	Quite well.
*16	„ 12	„ 19	7	3 Dec.	–	–	9	45	Convalescent.
*17	„ 13	„ 22	9	3 Dec.	–	–	9	42	Ditto.
18	„ 15	„ 22	7	16 Nov.	–	–	12	26	Quite well.
19	„ 15	„ 23	8	1 Nov.	–	–	12	9	Ditto.
20	„ 15	„ 21	6	3 Dec.	–	–	12	43	Convalescent.
*21	„ 15	„ 19	4	4 Nov.	–	–	12	17	Quite well.
22	„ 15	„ 24	9	–	–	3 Dec.	12	40	Suffering from debility.
*23	„ 15	„ 18	3	–	3 Dec.	–	12	46	Quite well.
24	„ 15	„ 25	10	–	3 Dec.	–	12	46	Suffering from debility.
*25	„ 15	„ 19	4	–	3 Dec.	–	12	45	Ditto.
26	„ 15	„ 25	10	–	3 Dec.	–	12	29	Convalescent.
*27	„ 15	„ 18	3	–	–	3 Dec.	12	46	Suffering from remittent.
28	„ 15	„ 27	7	–	3 Dec.	–	12	42	Convalescent.
29	„ 15	„ 19	4	–	3 Dec.	–	12	45	Ditto.
30	„ 15	„ 23	8	–	3 Dec.	–	12	41	Ditto.
Men sent from Mullet, Nov. 11.									
31	–	–	–	–	–	3 Dec.	–	–	Suffering from ague.
32	–	–	–	–	3 Dec.	–	–	–	Convalescent.
33	–	–	–	–	–	3 Dec.	–	–	Suffering from great debility.

"Of the cases of pure remittent fever (marked * in the Table), case 17 was the most typical. Those cases occurred for the most part soon after the men left the shore, the shortest period of incubation being three, and the longest, nine days. By the period of incubation I mean the time which elapsed between the day the man left the shore, and the day of his being attacked by fever. The most severe primary attacks were connected with the longest periods of incubation. In all the primary attacks (contrary to what has generally been observed) the exacerbations came on in the evening, and lasted the greater part of the night, in the severe cases until morning. Every case of pure remittent fever, at a longer or shorter period after convalescence from the first attack, relapsed. The severity of the relapse was in most cases in an inverse ratio to that of the first attack. Of the nine cases, five soon recovered the effects of the relapse, and at the date of my being sent to hospital had apparently quite regained their health; the remaining four recovered

vered to a certain extent, and then seemed incapable of further improvement.

"The cases of fever which did not exhibit the remittent type throughout, varied considerably in their symptoms. Some of them at first seemed examples of simple continued fever, but subsequently changed their character. Another set of cases were accompanied by gastric symptoms, the fever being as it were set aside, and symptoms of violent gastric disturbance taking its place. A third class of cases presented weakness as their chief characteristic; the feverish symptoms were in the first place trifling, and soon disappeared, leaving the patient to a prolonged convalescence. Of the twenty-one cases of mixed fever, nineteen subsequently suffered from ague.

"*Treatment.*—As might be expected from the circumstances preceding the fever, it was from the beginning of a low type, and required the free use of stimulants. At first I adopted the plan now recommended, of giving quinine in large doses at the commencement of the remission. I found, however, that in almost every instance ten or fifteen grain doses were at once rejected, when small ones could be retained. I am quite certain, from repeated observation, that quinine is more likely to be retained when given without acid. Where irritability of stomach existed, I found that five grains of calomel with a small dose of morphia, followed by Mist. ammon. carb., generally answered.

"Quinine was given to every officer and man twice daily while on shore; in the morning with water, in the evening with rum. After leaving the shore, quinine continued to be given every morning for a fortnight. Those who came on the list with fever of course continued to have it.

"*General Summary.*—Of the first batch of men, who embarked after having slept two nights on shore, fourteen of the fifteen escaped fever; while of the second batch, who left after having slept nine nights on shore, none escaped. Of the Kroomen, who were almost constantly at work, only one was attacked by fever. The case was a mild one, and does not require particular notice. Concerning the cases exhibiting the remittent type throughout, those with the shortest period of incubation suffered as a rule from a mild primary attack, but had a severe relapse; those with a long period of incubation suffered from a severe primary attack, but had only a trifling relapse.

"In some of the cases of mixed fever the period of incubation was unusually long—in one, nineteen days. Almost all the cases during convalescence suffered from intermittent fever."

There were thirty-six cases of primary fever in the Investigator, of which one, classed as continued, appears to have been of an ephemeral character, its duration being only five days. The remainder are classed as remittent, and were each, on an average, seven days under treatment on board. Two of them

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them, however, were sent to hospital, and three were invalided. The cases appear to have been tolerably equally spread over the different quarters of the year, and considering the deadly nature of the locality in which the Investigator was stationed (the Lagos lagoon), and that during a part of the year her crew were engaged on an expedition up the Niger, they appear to have been neither numerous nor severe. The comparative immunity, indeed, enjoyed by the crew of the Investigator, from the virulent fevers of the locality, was so marked as to attract the attention of the Commander-in-chief, who directed the medical officer* of the ship to report, in detail, the sanitary measures and medical precautions adopted by him for the preservation of the health of the crew of that vessel during her visits to the Niger, and ordered that a copy of the report should be kept on board the Investigator for the information of the officers who might from time to time succeed to the command and medical charge of that vessel. The report was as follows:—

"It is of the utmost importance that men to accompany this expedition should not be taken indiscriminately, but the strongest, most healthy, and by all means temperate men available, should be chosen for the purpose; and that there should be *no boys*, as they invariably suffer severely from the after effects of these expeditions.

"Each white man (including officers) to have four grains of quinine in one ounce of sherry, every evening after the day's work is done, commencing seven days previous to entering the river, and continuing the same for ten days after having returned from it.

"To have a cup of good hot coffee, before coming on deck, every morning.

"To have a pint of porter at dinner, which is to be in addition to the service allowance of grog.

"Not to be allowed to drink the river water, nor any other than condensed water.

"To be permitted to smoke when they please, and have as much freedom, generally, as the service will admit of.

"Any exposure to the sun to be most carefully avoided by the use of proper awnings, and more especially for the man in the chains. It is most necessary to watch closely to prevent unnecessary exposure.

"If men get wet, they should be seen to shift into dry clothes as quickly as possible.

"The bilges to be thoroughly cleaned and dried out every day, and chloride of zinc freely used if they are in the least foul.

"The

* Assistant Surgeon R. J. Sweetnam.

"The lower deck should not be wetted more than once a week, and should invariably be well dried up afterwards.

"It is most important that every man should be supplied with a mosquito curtain.

"The awnings should be spread at least nine feet from the deck; and, in fine weather, furled at 5 p.m. every day, and spread again at 6 p.m., before the dew commences to fall, which it does very early in the river.

"No white man should be allowed to sleep on shore under any circumstances.

"It is well to anchor in mid-stream, if possible, so as to avoid the closer proximity of the swamps; the flies and mosquitoes give less annoyance, and there is generally a current of air; however slight it may be, it is most refreshing, and conducive to a good night's rest.

"Music, singing, or any other harmless recreation, should be encouraged by all means; indeed, every effort should be made to keep the men in good spirits, and render the time as little monotonous as possible.

"It is of great importance that the ship should enter the Niger sufficiently early to admit of the expedition being brought to a termination before the water has fallen to any extent."

To this report he adds the following observations:—

"The climate of the lagoons, as well as that of the Niger, is peculiarly obnoxious to boys. After a month's residence, and sometimes even earlier, climatic effects manifest themselves. They become thin, pale, and cadaverous looking; they mope about; lose all strength and energy, very frequently vomit in the morning, and then ague sets in, or perhaps climatic fever, or both. They never make a perfect recovery, and these seizures are constantly recurring, after each of which they gradually become weaker and more weak. It is much the best plan to send them away after the first attack of fever. They are not fit for active service as long as they remain; constitutional debility is very likely to follow, or perhaps organic disease, most probably of the lungs, liver, or spleen. I have observed that the intermittent fever of the lagoons, no matter how slight, is almost invariably followed by some splenic affection, but varying in degree according to the intensity of the disease.

"I have recommended that smoking be allowed at all times, not because I am an advocate for the indiscriminate use of tobacco, but because I found, by experiment, that the quantity of tobacco consumed was not nearly so large as when men were tied down to service hours. They then smoke against time, not because it is agreeable to do so, but because they know they shall be obliged to abstain for so many hours after. This also produces another very ill effect; viz., to make the smoking time as long as possible, men hurry their meals, bolting their food, so as to fill their stomachs in the shortest possible space of time. I believe this is a fertile cause of the many cases of dyspepsia occurring on board ship, keeping men

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on the sick-list, and robbing the country of their services. I think the moderate use of tobacco is highly conducive to health in those who have acquired the habit of smoking, especially on the Coast, where it helps to relieve the monotony, and while away the dreary and tedious hours of a miserable existence.

"Although these observations apply especially to the Niger, an almost similar course of proceeding has always been adopted in the lagoons of Lagos, the head quarters of Her Majesty's ship Investigator, and followed by the happiest results, as is proved by the fact that during a period of three years the number of deaths amounted only to four, and of these, two were Africans; so that of Europeans there were but two deaths, one of an officer and one of a man."

There was a single case of primary fever in the Isis. It was of the remittent type, and mild in character.

There were thirty-two cases of primary fever in the Jaseur, of which twenty-six occurred during the Lady quarter of the year, about a fortnight after the vessel left the River Congo. As a rule, they were mild, but in many instances relapses occurred.

In the Landrail there were nine cases of primary fever. Five of them are classed as ephemeral and four as remittent. Considerable debility is stated to have followed upon the cases of ephemeral fever, which were considered abortive attacks of the ordinary coast remittent. In the Statistical Report of the Health of the Navy for 1865, notice was taken of the entire exemption from the fevers of the station enjoyed by the ship's company, and while it was remarked that this was probably mainly attributable to the vessel not being employed on river service, notice was taken of the judicious measures adopted to preserve the health of the men. The beneficial influence of these measures continues to be apparent in the paucity of the fevers in the present year, when the vessel visited several rivers. The medical officer says:—

"During the first year of our commission I was enabled to state that no climatorial diseases had made their appearance amongst the ship's company, but during the past year, towards its termination, the common coast remittent fever commenced to show itself; and though none of the cases have been marked by severe symptoms, yet the disease having once appeared, we may expect more cases at any period. No doubt our immunity from climatic disease during the first year was in great measure due to the fact that, during that time, the nature of the service on which we were employed did not include any 'river work,' while in the past year we have visited the Bonny, Congo, Sierra Leone, and the Mellacoree, in the latter

of

of which, the ship having grounded, the crew were a good deal exposed to the sun's rays on a hot day, and just about the warmest time of the day.

"Considering the time we remained at anchor in Sierra Leone river, we must look upon ourselves as fortunate in escaping with only a single case of fever (and that hardly attributable to Sierra Leone). I feel convinced that we left that locality just in time, viz., at the end of the rainy season, and before the sun had begun to exert its influence powerfully on the sodden ground. No leave was given to the ship's company while at Sierra Leone, nor indeed at any place in the northern division. At Kabenda leave was given without any bad effect. All the men on leave returned on board before sunset. I may mention that there has been no boat cruising during the past year, at least in the boats of this ship, and thus another source of disease has been avoided."

For two days previous to entering the River Bonny, and during the stay of the vessel there, five grains of quinine in half an ounce of rum diluted with water, was given to each of the ship's company (Kroomen excepted) daily. At Sierra Leone, quinine was only given to the boats' crews, and to the stewards, whose duties brought them into frequent communication with the shore. In the River Congo it was given to all the ship's company, with the previous exception, every morning.

There were five cases of primary fever in the Lee, four of which were ephemeral; the fifth case was one of remittent fever, which occurred in the person of an officer, who was exposed to malarious influences in visiting and remaining at Whydah for three days. The fever made its appearance twelve days after his return to the ship. It presented no features of interest.

Sixteen cases of primary fever appear in the returns from the Mullet, fifteen of which occurred during the Christmas quarter of the year. Several of these cases, however, appear to have occurred amongst the men of the Griffon, who on the loss of that vessel were sent on board the Mullet. The medical officer* of this vessel says:—

"Taking the whole of the cases of remittent fever that were treated on board during the quarter, the average period of incubation was eighteen days. It is almost unnecessary to state that quinine was regularly given to the ship's company of the Griffon, and also to the men of this vessel who were up the Rivers Nun and Benin. This invaluable

* Assistant Surgeon T. Milne, M.D.

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invaluable prophylactic I have invariably administered twice daily for a period of fifteen days, after any of the men were exposed to malaria. A similar course of treatment was pursued in nearly all the cases, due attention, however, being paid to the severity or any peculiarity of the symptoms. The primæ viæ were cleared out by the administration of a calomel and jalap purge; gastric irritability staved off by sinapisms, small doses of chloroform, or effervescing draughts with hydrocyanic acid. As soon as gastric irritation had subsided, quinine, nutrients, and stimulants were freely supplied. In some cases when the skin was hot and dry, and high febrile excitement present, diaphoretics were administered. Cold sponging was also resorted to, and was not only grateful to the patients, but seemed to afford considerable relief. Turpentine enemata were administered in two cases, and with apparent benefit."

There were ten cases of primary fever in the Oberon, all of which are classed as remittent. The average duration of each case was nine days. They were almost all attributable to exposure in the Rivers Bonny and Cameroon, where the vessel remained over a month. They were not of much severity.

There were thirty-four cases of primary fever in the Pandora, all of the remittent type. The average duration of each case on board ship was about seventeen days; but two men were discharged to hospital. Two cases proved fatal. One of these occurred in the person of an officer who, previous to his fatal illness, had several times complained of being unwell, after exposure to the sun. He complained at these times of severe headache, and occasionally of difficulty of breathing. The attack which carried him off was of great severity, and characterised by violent delirium. On the second day after being placed on the sick-list, his cabin being very close and hot, it was deemed advisable to have him placed on deck in a cot. To this he was being assisted, when he was suddenly seized with a violent convulsion, and expired, not having been more than about a minute on deck. No examination of the body appears to have been made after death.

In the Ranger there were thirty-nine cases of primary fever, one of which proved fatal. They are all classed as remittent. They were tolerably equally spread over the various quarters of the year. The medical officer* of the ship makes the following observations on these cases:—

"By far the largest proportion of men placed on the sick-list were for

* Assistant Surgeon W. D. Wodsworth.

for attacks of remittent fever, the majority of the cases being relapses of a previously contracted attack; the thirty-nine cases recorded occurring among twenty men. Eight of these were primary attacks, and in each of these the cause could easily be traced to exposure to malarious influence on shore; two at St. Paul's de Loando, one a steward, and one who had slept all night in the open air, with only part of his clothes on; three at Kabenda, where leave was given to the men in June, the three men attacked having broken their leave, and slept on shore; and the other three at Loango, where the cutter and boat's crew were left for the protection of the factories, the boat being away for thirteen days, and the men having constant communication with the shore; in fact, they were encamped on the sandspit which separates the lagoon from the open sea, for eight days. The other cases were induced chiefly when the ship lay either in the River Congo or at St. Paul de Loando, these places being undoubtedly the most unhealthy points on this part of the station.

"The foregoing examples are greatly in favour of the theory that malarious emanations are most deleterious on or near land, and in the mouths of rivers, where the banks are low and constantly covered with inland swamps and shallow lagoons; but that they become absorbed or diffused, and rendered more or less inert when passing over an expanse of water, and subjected to the influence of the sea-breezes. Indeed, the benefit of the sea-breeze was always felt when we left the river, and were stationed on cruising ground north or south of it, the health of the men visibly improving therefrom. The following facts, which came under my notice, may also be related as a further example of this. Whilst lying in the River Congo, I visited at Banana Creek a Dutch barque, in which all hands were more or less affected with remittent fever. The captain told me that whilst lying out in the stream, they were perfectly free from this disease, but when the vessel went alongside the jetty where the men had free access to the shore, they were struck down with fever one after the other. The men had been previously given quinine and tincture of cinchona bark daily. One boy was almost moribund when I saw him, but was revived by repeated small doses of champagne and nourishing enemata. In another man who was much debilitated, dislocation of the lower jaw ensued during the act of vomiting. He had been in that state two days before I saw him, and reduced the dislocation. Another barque which remained out in the stream, was still perfectly free from fever. I also found that when cruising in the Bights, where with the exception of the Kroomen there is no communication with the shore, there was great immunity from recurrence of the fever. This, however, may have been due to the change of air.

"With regard to preventive measures, quinine has been given as a prophylactic whenever the men were subject to any exposure, such as boat-cruising, coaling and provisioning ship at St. Paul de Loando or elsewhere, and whenever leave was given.

"The primary fever was generally manifested by intense headache, delirium, and unconsciousness, restlessness and want of sleep,

 rigors,

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rigors, nausea, and vomiting; aggravated thirst, hot dry skin, quickened pulse, furred tongue, and irregularity of the bowels. The subsequent febrile accessions by a similar train of symptoms, but not of the same degree of intensity.

"The treatment adopted was the administration of aperients, alteratives, and diaphoretics, the thirst and irritability of the stomach being allayed by effervescent draughts and tincture of hyosciamus, or compound spirits of æther;—quinine in four or five grain doses;—and for the exacerbation of the fever, chiefly occurring towards evening, diaphoretics were exhibited. I found Dover's powder a very valuable remedy in many instances, not only producing diaphoresis, but also inducing sleep, the want of which is so much complained of by the patient in this disease.

"After the febrile symptoms have subsided, the patient is left very weak and debilitated, and requiring the aid of stimulants and nourishing diet to insure convalescence, which, however, is sometimes very tardy, the least exposure bringing on a relapse of the fever; quinine and iron, or quinine and aromatic spirits of ammonia, have at the same time to be given. Both of these I have found very useful combinations in this stage of the disease. Besides debility, other sequelæ which arise during convalescence are, œdematous swelling of the lower extremities coming on, and alarming the patient very much when he first takes any exercise, gradually diminishing, however, as he gets stronger, and requiring for its treatment only friction and support; bronchitis has occurred with me in two instances, but was very readily amenable to the usual treatment; palpitation, most probably arising from weakness; epilepsy and epileptic mania, and occasionally partial paralysis.

"When not retarded by these complications, convalescence usually takes place in from fourteen to twenty-one days, but leaves the patient liable to recurrences of the disease, on being subjected to any exposure."

In the Snipe there were twenty-three cases of primary fever, fourteen of which are classed as remittent, and nine as febricula. The cases of remittent fever followed exposure to malarious influences in the River Congo; and although no mortality was occasioned by them, they were in some instances of great severity. The average duration of each case on board ship was about thirty-five days.

There were twenty-one cases of primary fever in the Sparrow, eleven of which are classed as continued, and the remainder as remittent. The average duration of each case of the former type of fever was between seven and eight days, and of the latter twenty days. The majority of the cases occurred during the Midsummer quarter of the year, when the vessel lay for three days in Banana Creek, and was also at Sierra Leone. At the former place, three grains of quinine

were

were administered to every man daily, but there appears to be little doubt that almost all the febrile cases were attributable to exposure there.

There were forty-five cases of primary fever in the Speedwell, of which thirty-nine are classed as remittent, and six as febricula. Nineteen of the remittent cases occurred in the Michaelmas quarter of the year, and twenty in the Christmas quarter. Four of the latter assumed what is termed the malignant type of the disease, but they recovered. The debility following the fever was often very great, and great difficulty was experienced in overcoming it. Nearly all the cases were referable to exposure in the Rivers Congo and Gaboon.

There were fifty-two cases of primary fever in the Torch tolerably equally distributed over the various quarters of the year. Twenty-three of these are classed as remittent, and twenty-nine as febricula; the average duration of each case of the former type of disease being nine days, and of the latter three days. A considerable number of cases occurred in the month of August, which were attributed mainly to leave being granted at Kabenda and St. Paul de Loando for the purpose of seining in the evening.

There were nineteen cases of primary fever in the Vindictive, one-half of which occurred during the months of January and February. Two of the cases proved severe, one being ultimately invalided, and the convalescence of the other much retarded by enlargement of the liver.

Yellow Fever.—Thirty cases of this malignant form of fever were under treatment during the year, of which twenty-eight occurred in the Bristol, one in the Espoir, and one in the Isis. Of these, twenty-five proved fatal.

In the "Statistical Report of the Health of the Navy," for the year 1865, a detailed history was given of the epidemic of yellow fever, with which the Rattlesnake was visited, consequent on communication with the Isis at Sierra Leone, in which vessel the disease prevailed, and seemed to be perpetuated by passing from one new-comer to another, almost every European who took up his residence in that ship falling a speedy victim to it. That the infection was derived from the Isis would, it was stated, be more apparent when the yellow fever in the Bristol was considered.

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The narrative of this disastrous epidemic will be best given in the words of the surgeon* of the ship, premising that all the cases occurred during the first quarter of the year, during which period also, ten cases of fever classed as remittent, and twenty-one as febricula, were under treatment.

"On our arrival at Sierra Leone the store ship Isis was the only man-of-war in the harbour. Owing to light winds we were not able to reach the anchorage off Free Town, and so dropped anchor at Cape Sierra Leone. It having been reported that some cases of yellow fever had occurred on board the Isis, the commodore determined to remain outside, off the lighthouse, and it was also determined to move the hulk to a more healthy part of the river, as she was then lying 200 yards from the landing place at Free Town, near a mud flat which was exposed at low water, and was as unhealthy a position as a ship could well occupy. For the purpose of moving the hulk, a party, consisting of 112 men and four officers (a lieutenant, master, sub-lieutenant, and midshipman), were sent on board on the 28th of December 1865. The weather on the passage from St. Vincent to Sierra Leone was oppressively warm, but at the latter the strong Harmattan winds blowing during the greater part of the day cooled the air, affording a refreshing and agreeable change after the recent heat. The party in the Isis were employed on the 28th and the whole of the next day, working late at night. The labour was necessarily heavy, still we did not apprehend any bad consequences therefrom, as the men were protected from the heat of the sun by the roofing of the hulk. Nor were they much exposed on the passage to and from the ship, as they left early in the morning and returned late at night, and were generally conveyed in the steam launch. On the first day they left the ship at 6.30 a.m., after breakfast; dined at 1 p.m.; supped at 7.30 p.m.; left off work at 9 p.m.; and were on board again by 9.30 p.m. The next day they left at 5.40 a.m.; had dinner at 1.50 p.m.; supper at 9 p.m.; and left the Isis at 10 p.m., but in consequence of the strong tide running did not reach the ship till 11.30 p.m. Before leaving in the morning, and on returning each day, every man and officer had served out to him four grains of quinine in solution, and the issue thereof to the party was continued up to the 14th of January 1866.

"From inquiries made, it appeared that seven cases of fever had occurred and proved fatal in the Isis between the 21st of September and the 18th of December. The first case—that of a ship's steward of the Isis, who was taken ill on the 21st of September, and died on the 28th with symptoms of yellow fever. This man had been in the ship seventeen months. The two next were cases of remittent fever. The next was that of a boy who arrived from Ascension by the Industry on the 20th of November, was taken ill on

* Surgeon W. G. I. Ayre.

on the 27th, and died on the 30th with symptoms of yellow fever. A bandsman from the Rattlesnake next died of remittent fever. On the 13th of December the commander of H.M.S. Sparrow came out from England by the West African Mail. He was accompanied by his servant. They both joined the Isis the day of arrival. On the 16th the servant was seized with fever, and died on the 21st; and, on the 18th the commander was attacked, and died on the 21st. In his case there was black vomit and suppression of urine; in the servant, black vomit, but no suppression; in both there were, I was informed, distinct exacerbations and remissions, death taking place unexpectedly. The commander of the Sparrow had been on shore on several occasions. The day before he was attacked he had been a good deal exposed to the sun, and had bathed in the heat of the day. It has since been ascertained from his private journal that when at the Gambia he was not feeling well, though he did not complain when he joined the Isis. The servant had also been on shore on duty for his master. The occurrence of so many deaths, and that in persons who had recently joined, pointed suspiciously to some fever-poison lurking in the ship. It was, however, just doubtful whether the two last cases had not been contracted on shore, but our own experience only too sadly proved that the Isis was a centre of infection, and that of a very virulent kind., I should here mention that during our stay at Sierra Leone some of the officers landed daily, either in the cutter or the steam launch, the men in those boats only having communicated with the shore, with the exception of a party of officers and men who landed in a bay near the light-house for the purpose of hauling the seine, and a party of petty officers. These men had landed early on the morning of the 29th to purchase mess-traps, and on their way back stopped for a short time alongside the Isis. One of their number only went on board for a quarter of an hour, and suffered from an attack of yellow fever. On the 29th of December a case of fever occurred in the person of an officer who had landed at Sierra Leone on the 26th of December, and remained on shore the whole day in the sun, bathing in the heat of the day, and, having missed his passage in the boat sent for the officers in the evening, repaired with a companion and messmate on board the Isis, where they spent the night. They were provided with hammocks, and slept outside the ward-room, one on the starboard side, the other on the port. He was not feeling well when he landed, suffering from headache and disordered stomach, the result of irregularities on Christmas night. He first began to complain on the 29th, but was not placed on the sick-list till the 30th. His symptoms gradually developed themselves into those of yellow fever. I may mention that his companion, with the exception of a slight feverish attack, suffered no ill effects from his visit to the Isis. On the 31st, one of the Isis party, a seaman, took fever, and died on the 3rd of January with symptoms of yellow fever. The next case was that of an engineer officer, who had been doing duty in the steam launch, lying alongside the Isis part of the time; but one night (29th), while waiting to tow the boats back to the ship, he spent about four hours on board the Isis. He was taken ill on the 31st,

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but was not placed on the sick-list till the 1st of January. He suffered from a bad attack of yellow fever.

"On the 1st January twenty more cases occurred; on the 2nd, six cases; on the 3rd, three cases; on the 4th, three cases; on the 5th, two cases; on the 6th, one case; and on the 12th, one case; making a total of thirty-eight, twenty-nine of which have been classed as cases of yellow fever, and nine of remittent. A case of slight ague occurring in a boy, a gun-room servant, who was said to have been attending the gun-room officers in the Isis, and reported accordingly as having contracted fever in that ship, was found, on further inquiry, never to have been on board the hulk. The first death occurred on the 3rd of January. On the 4th of January there were four deaths; on the 5th, six deaths; on the 6th, four deaths; on the 7th, three; and on the 10th, three; making a total of twenty-one. Two men subsequently died at Ascension Hospital.

"The following is a general description of the symptoms. In the yellow fever cases the attack was usually ushered in with slight shivering or rigors, vertigo, and a feeling of great debility, followed by intense frontal headache, pain over eyeballs, and severe lumbar pain, with a dry and pungently hot skin; thirst, tongue covered with a thick creamy fur on dorsum, red at tip and edges; pulse frequent and full at the first, bowels generally constipated, urine high coloured. In some cases intense headache was the first symptom complained of, followed by rigors and high fever. In others, debility was a prominent symptom, the patient feeling as if he had lost the power of using his limbs. In the majority of cases the fever ran high for the first twenty-four hours, but next morning there was a marked remission; less headache and back pain, tongue moist, the pulse less frequent and full, and the patient felt better. At some period in the afternoon the fever returned with increased severity. At night there was great restlessness and delirium or wandering. Next, irritability of the stomach manifested itself, accompanied by epigastric pain, or a sensation of burning in œsophagus; the vomiting at first bilious, subsequently streaked with black specks; the skin became yellow, tongue dry and brown, eyes injected, icteric. In the more severe cases, where death occurred early, the tongue became dry and brown, beefy, and denuded of epithelium at the edges; the aspect dull and heavy. The pulse became weak and small, and frequent, 96–120; sordes collected about the teeth; hæmorrhages took place from the mouth, nostrils, and throat; the vomiting became more troublesome, nothing could be retained on the stomach; matters vomited, at first streaked with dark flocculi, terminating at last in profuse black vomit; dark coloured stools were passed in most cases. The urine was suppressed, and death took place by exhaustion; the extremities becoming cold, countenance pinched, pulse failing. In other cases death was preceded by delirium, spasmodic twitchings of the muscles, catching, laboured breathing, convulsions, and sometimes, at the last, spermatorrhœa. Albumen was generally found in the urine on the second or third day. From the first it was diminished in quantity, and at the last there

there was complete suppression. The urine, in all cases examined, was highly albuminous, loaded with tube casts, epithelium, and blood cells. Only five of the patients who had 'black vomit' recovered. The officer first attacked is the only one who has remained in good health; but the others were so much shattered in health that some were invalided from the station, and the others were discharged to harbour ships in England, it not being thought desirable they should return to the Coast.

"In the cases recorded as remittent fever, the early symptoms were pretty much the same. There was a slight remission on the second morning, and a perfect one generally on the third. There was a slight amount of albumen in some of the cases; the secretion of urine was generally natural, the phosphates and oxalates of lime predominating in some cases, and lithates in others. The vomiting was bilious, and in a few men there was a slight yellow tinge of skin. The convalescence in these cases was most protracted, there being great debility; the pulse remarkably small and low, and at times irregular and intermitting.

"The general plan of treatment adopted consisted in the administration of calomel, combined with Pulv. antim. co., followed in a few hours by a sulphate of magnesia draught. When the bowels had acted, a mixture of nitrate of potass and tartar emetic in camphor-water was given every four hours, with a liberal supply of drinks, such as barley-water, lemonade, thin arrowroot, &c. As soon as a remission took place quina was given in scruple doses, for the first three doses, and in ten-grain doses every four hours afterwards. When the powers of life began to fail, stimulants and nourishment were assiduously administered; beef-tea, brandy-and-water; punch, made with lime-juice and a small quantity of brandy, and given as a drink; wine, wine-and-water. When the stomach was irritable, bottled ale and champagne were sometimes better retained. The head was shaved, and cold evaporating lotions kept constantly applied. When the patient became comatose, cold affusion to scalp and blisters to the nape of the neck were applied. When the irritability of the stomach was very great, chloroform in small doses, chlorodyne, bismuth, and acid. hydrocyanic dil. were given, and sinapisms applied to the epigastrium; enemata of quinine, beef-tea and port wine, when the quinine was rejected by the stomach. A solution of alum was injected into the nostrils when the epistaxis was violent, and the same used as a wash for the mouth when there was oozing from the gums. When no urine was passed, the catheter was introduced, to ascertain the condition of the bladder. Turpentine stupes and fomentations were applied to the loins to relieve the intense lumbar pains. The sick were kept separated from the ship's company by canvas screens; the whole of the forepart of the ship, as far aft as the galley, and the space between the two ports abaft the sick-bay, being entirely set apart for the fever cases. The plan of treatment pursued had, I must confess, very little effect on the disease, which, when once it had assumed its severe form, ran on unchecked to a fatal termination.

"I may here mention that, as far as I could learn, the settlement

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at Sierra Leone, at the time of our visit, was generally healthy, the period of the Harmattan winds being considered a healthy season. An epidemic of fever had committed great ravages some months back, but latterly only a few cases of fever had occurred. At St. Vincent's the sanitary condition of the island was also good. The boat's crew employed landing the officers and engineer officers had alone communication with the shore. We have thus our source of infection narrowed to the Isis herself; and on reviewing the circumstances connected with the outbreak of the fever, viz., that those only who were employed on board the Isis suffered, and that not a single case occurred among the rest of the ship's company, or the men in the boats employed landing the officers, there cannot be a doubt that the fever poison was localised in the hulk, and that poison, judging from its results, one of a very virulent and active nature; the latter quality being exemplified in the cases of an officer and a man, the former having been on board for three hours, the latter for little more than a quarter of an hour on his return from purchasing mess traps at Sierra Leone on the morning of the 29th of December.

"I made inquiries as to whether the men were conscious of any noxious effluvium when working in the hulk, but was told that nothing was perceived beyond a slight odour when getting the cables out of the hold. The only complaint made was as to the water they drank, ~~which~~ appears to have been so foul and fetid as not to be drinkable. It appeared that this water was taken from the rain tanks which collected the rain water from the roof, and was never used for drinking purposes by the crew of the Isis. I could not learn either that any liquor had been smuggled into the hulk or that any excesses of that kind had taken place. It may here be noticed as remarkable, that no officer of the working party, with one exception, suffered, and other officers likewise escaped. The captain was on board at various periods superintending the work; the chief engineer was also there for four hours; I was myself on board the last day (29th) for an hour; and there was not even a manifestation of feverishness in any of these. I may add that the men who were attacked were among the finest and best conditioned in the ship.

"I would next remark upon the nature of the fever. It was my impression from the first that I had to deal with the malarious form of fever of the African coast. Of one fact there was ample proof, viz., that the fever was not a contagious one. In no one instance did it spread from man to man. Not a single case occurred that was not connected with the Isis, every man attacked having been on board that ship. Had the fever been a contagious one it had ample opportunity of propagating itself, for though the precautions taken to separate the sick from the rest of the ship's company were the best that could be adopted under the circumstances, still they were inadequate to have prevented the spread of a contagious disease. And again, the men employed as nurses, numbering some twenty-four, who were hanging for hours over, and supporting in their arms, their dying shipmates, their frocks in many cases accidentally covered with black vomit, and treading with their naked feet in the black vomit

vomit about the deck, none of these men suffered from fever; nor did any of the medical officers, five in number, who were in constant attendance upon the sick, suffer. Also, on the removal of the sick to hospital at Ascension, not a single case occurred either among the nurses or the medical officers of that establishment. I know that the distinction between true specific yellow fever and malarious yellow fever is hardly well established. The 'diagnostic' symptoms of true yellow fever, viz., suppression of urine, black vomit, yellow skin, and albuminous urine, were present in all these cases to a greater or less extent; but one point, strongly insisted on as diagnostic, is the contagiousness of true yellow fever. So that if we take into consideration the marked periodicity of the disease in the severe as well as the milder forms, and its not being propagated by specific media from person to person, we must conclude either that the fever in this ship was the malarious form of yellow fever, not a specific one, or else that true yellow fever considered as a specific fever, under some circumstances is not contagious.

"I would here add, that my plan of treatment was principally based on the distinction between these two forms of fever; quinine, from its specific action on all fevers dependent on malarial poison, would be the remedy specially indicated; believing that quinine exercised a specific action, amounting almost to being a perfect antidote to the malarial poison, I administered it freely and in large doses, being guided therein by the experience of Dr. J. G. Hare, of Bengal, who in malarious fevers gave large doses at short intervals, and whose practice appears to have been most successful. He recommends quinine to be given to the utmost in extreme cases, *i. e.*, where there is imminent danger of life, when he says, 'the earlier and the larger the doses of quinine that can be given to the patient the better.' I must, however, allow that in the severer cases quinine failed to arrest or even control the fever, and that when the patients were under the full influence of the drug; and I should feel disposed in future similar cases to give it in smaller doses. In the milder forms, however, it had a most beneficial effect; and with regard to quinine as a prophylactic, though it failed to protect the poor fellows who were attacked, still I think one may fairly attribute the immunity of those of the Isis party who escaped, to their having taken quinine regularly, both during the time of their exposure in the hulk and for fourteen days after. The period of incubation is well defined; the majority of the cases being from two to seven days, the longest period of latency being fourteen days. As regards the generation of the fever in the Isis, I would suggest that deterioration of the coal on board, some 500 to 700 tons, may have had some influence in developing the fever poison, large accumulations of coal in tropical climates being now viewed with suspicion in connection with outbreaks of fever."

One of the medical officers* of the ship, who appears to have

* Assistant Surgeon Fleetwood Buckle, M.D.

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have studied carefully the phenomena in connection with the epidemic, says :—

"In the Nosological Tables, the cases were divided into typhus icterodes (the fatal cases); those next in severity were classed as remittent fever, the next as intermittent fever, and the mildest as febricula. This classification, although it gives an idea of the severity of the symptoms, does not identify the disease. I believe that all the cases were of the same type, and differing only in severity, depending on the patient's constitution and the dose of the poison; and I agree with those who think that yellow fever, at least the African variety of it, is merely an exaggerated form of ordinary poisoning by marsh miasmata; for in every epidemic on the coast, the disease is ushered in by cases of febricula, intermittent fever passing into remittent, and then into yellow, or 'vomito negro.' That quinine does not cure yellow fever I do not think of any weight, as generally the patient's stomach is in too irritable a condition to take up any thing; and also, though that drug may be a sufficient antidote to the slighter poisons, it is not fair to argue that therefore a larger dose ought to cure a stronger poison."

He details with great minuteness the leading symptoms in the majority of cases. He says:—

"The leading symptoms observed in the average number of cases were, at first, great lassitude and giddiness, and dull headache, and aching of the bones, sometimes, but not invariably, preceded by a severe rigor; then flushes of heat alternating with chills; a flushed face; injected eye, and dull, heavy, anxious aspect of countenance; unwillingness to speak or answer questions, or frequently answering vaguely; from swelling of the tongue inability to pronounce distinctly, or answering inaccurately, as though pre-occupied with some thought of known impending danger, or presentiment of near approach of death; loss of use and impaired sensation in limbs, the legs especially (coup de barre); loss and impairment of sight, and optical delusions; loathing of food; intense thirst; a large, pale, flabby tongue; a full, frequent pulse of 120, or upwards; a forcible excited action of the heart; hurried and sighing respiration; pain and tenderness of the abdomen; confined bowels; scanty, bilious, or albuminous urine; skin burning, harsh, and dry, or with local perspiration, which perhaps occurred on the face and chest, while the feet were quite cold; a dusky yellow tinge all over the cuticle, or a papular rose-rash, and crops of sudamina; the temperature of the body raised six or seven degrees; the voice altered, husky, and low; great intolerance of light and sound: restlessness or delirium at first quiet and wandering, then a sudden outburst of laughter, jumping out of bed, and trying to get out at the ports 'to bathe;' talking noisily and singing; sponginess and slight hæmorrhage from the gums or mucous membrane of the nose; vomiting, at first of undigested food, then some thin watery fluid, afterwards bile, and this

this gradually darkening in colour and becoming thicker, and containing some small specks like caraway seeds, or shreds of black currant skin; a strong ammoniacal or oniony odour about the body.

"These symptoms continue to increase in severity to the evening of the third or fourth day, when a more or less complete remission occurs; the pains in the head, eyeballs, limbs, and back decreasing, the pulse becoming less frequent, and a profuse perspiration breaking out on the skin of the chest and forehead; the bowels acting, and the flow of urine becoming more free. In the majority of the favourable cases this proved the crisis of the disease, and convalescence dated from it; but in the severer forms all the worst symptoms returned with increased violence; the headache became intense and agonising, the flow of urine ceased; the bowels became irritable and irregular; the mouth and throat too sore to swallow, the attempt causing 'a flame of fire to dart down;' oppressed respiration; rapid pulse; deep yellow skin; constant black vomit; and wild delirium, coma, and death close the scene.

"In some cases there was marked spinal irritation, for on pressing the spinous processes of the eleventh and twelfth dorsal vertebræ, severe pain was complained of, which continued for some time after the pressure had been removed. There was intense muscular irritability; the slightest touch of the skin would cause the muscles of the limb to contract spasmodically, somewhat similar to those of a galvanized frog. In some cases the muscular irritability made the nearest approach to tetanus I ever saw, and a stranger seeing a patient's movements for the first time might easily have mistaken the disease, except for the constant vomiting and yellow skin and fever. Some had an eruption not unlike that of typhus fever, dull mottling of the abdomen, but it was followed by furfuraceous desquamation of the cuticle, especially of the hands and feet. Petechiæ on the arms and back were rather common, and local dropsy (as of one hand), and swelling of the lymphatic glands. Diarrhœa and tenesmus were present in some cases, and sloughing of the skin of the scrotum and penis, priapism and spermatorrhœa preceded death. The tenderness of the abdomen was either general or confined to spots over the liver, bladder, and spleen. In the mild cases there was a great distaste for sugar, and refusal of foods, previously favourites.

"As to body temperature I am extremely sorry I could not get accurate records in every case, slight or severe, but it was impossible; it took up too much time, and so many other things that could not be put off, pressing, obliged me to content myself with the notes in the worst or most marked cases. I would have wished to have made hourly notes, to observe the rise and fall. I have made out and enclosed diagrams of some of the observations, but in others the records were not complete."

The following admirable Synopsis, Table, and Diagrams are by the same officer, and are exceedingly valuable contributions to the history of this remarkable epidemic.

SYNOPSIS of NOTES on CASES of YELLOW FEVER.—

Number of Case.	Age.	Quality.	Number of Mess.	Height.	Complexion.	Date of Attack.	Died.	Hours Sick.	Number of Days Pyrexia lasted.	Attacked after Exposure terminated.	Pulse.				Body	
											Morning.		Evening.		Morning.	
											Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.
				Ft. in.						*Hrs.*						
1	19	Clerk -	Gun-room.	5 11	fair	Dec. 28, noon.	–	–	9·5	26	84	120	86	134	No observations.	
2	24	A. B.	19	5 10	fair	Dec. 29, while on board Isis.	–	–	9·	–	72	120	78	100	No observations.	
3	22	O. S.	21	5 8	fair	Dec. 31, 5 a.m.	Jan. 3, 2.45 a.m.	57	–	31	100	148	112	134	No observations.	
4	30	A. B.	12	5 4	fair	Dec. 31, noon.	Jan. 6, 5.50 p.m.	150	–	38	72	118	84	146	104	106·5
5	22	P. M.	33	5 7	dark	Dec. 31, 3 p.m.	Jan. 5, 6.50 a.m.	112	–	41	86	136	80	132	105	106
6	17	B. 1 Cl.	24	5 2	fair	Dec. 31, 4 p.m.	–	–	5·5	42	64	136	80	132	No observations.	
7	26	Asst. En.	Engnrs. Mess.	5 10	dark	Dec. 31, 6 p.m.	–	–	8·5	44	88	124	84	124	No observations.	
9	21	Corp. R. M.	34	5 10	fair	Dec. 31, 8 p.m.	Jan. 6, 5 a.m.	153	–	46	84	128	64	124	101	107
10	25	A. B.	26	5 8	fair	Dec. 31, 9 p.m.	–	–	4·5	47	68	104	80	142	No observations.	

WEST COAST OF AFRICA.—EPIDEMIC of 1865-66.

Temperature. Evening. Minimum.	Temperature. Evening. Maximum.	Urine.	REMARKS, AND PECULIAR SYMPTOMS.
–	–	At first acid and slightly albumen, then bilious, bloody, and loaded with albumen, then hipp. acid.	A severe case. Several relapses. *Peculiar symptoms* were: loss of sight on fourth day; herpes on lips and slight cough; distaste for sweet things; spongy gums, and hæmorrhage from mucous membrane of mouth and nose; a red papular rash on the chest; petechiæ on arms, &c.; abdomen tympanitic and tender.
–	–	Depositing lithates. No albumen. 51 grs. hippuric acid passed in 1 pint.	Less severe than preceding; but he recovered very slowly, and remained anæmic and very weak for many months. He vomited whilst on board Isis, after drinking some of the stinking water. The fever was accompanied by severe rheumatic pains in the joints. There were well marked remissions.
–	–	Dark brownish, bilious, highly albuminous, and suppressed.	Very severe, and quickly fatal. He vomited copiously and constantly, the black, grumous fluid coming up in large quantities, ejected suddenly. There was violent delirium, for which the head was shaved, and ice and evaporating lotions supplied.
103	108·5	Bilious, bloody, with epithelium and tube casts, and much albumen.	Severe. Low typhoid state, wandering, picking bed-clothes, &c.; purging; constant, copious, almost involuntary black vomit; great irritability of muscles; loss of sight; skin deep yellow; large crop of sudamina; spermatorrhœa before death.
106	108·	Fatty and epithelial tube casts. Great excess of sulph. ac. Highly albuminous.	High fever, calling out, singing; convulsed, spasmodic contractions of muscles; copious dark grumous fluid vomited. Herpes on lips. Tenderness of hepatic region. Skin deep yellow. Bowels at first confined, then motions frequent, loose, dark, and scybalous, and at last pale, frothy.
–	–	Solid, with albumen	High fever. Great pains in loins and stomach, and cough; wandering and throwing arms about; remissions, fourth and sixth days; relapse, ninth day; black, suddenly-ejected vomiting; deep yellow skin; purging, motions offensive, pale, frothy; slight cinchonism, cough, deafness, and conjunctivitis.
–	–	Black, bloody, loaded with tube cases and broken blood cells and albumen.	A bad case, with relapses; bowels dark, confined, very offensive; wandering and muttering; flatulence; dreams much; vomiting copious, greenish bile, then copious and black; gums spongy and bleeding, occasionally severe; abdomen tympanitic and tender; bruise marks of petechi. He had jaundice two weeks ago.
–	108	Solid with albumen	High fever, delirium, laughing, singing, spasmodic action of muscles; priapism and spermatorrhœa; tenderness and pain at epigastrium and over liver; vomiting copious, dark, curdy, blackish, with currant skin-like pieces; tongue contracted, raw, denuded; skin deep yellow; excoriation of skin at anus.
–	–	Traces of albumen and sugar. Some hippuric acid.	Remissions, delirium, wandering, rheumatic pains; vomiting of bilious fluid; pain and tenderness over liver; skin yellow; purging, with bloody stools; remissions on fourth and sixth days; tongue pale, large, flabby, then contracted, dry, and brown.

Synopsis of Notes on Cases of Yellow Fever.—

Number of Case.	Age.	Quality.	Number of Mess.	Height.	Complexion.	Date of Attack.	Died.	Hours Sick.	Number of Days Pyrexia lasted.	Attacked after Exposure terminated.	Pulse.				Body	
											Morning.		Evening.		Morning.	
											Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.
				Ft. in.						*Hrs.*						
11	22	O. S.	26	5 2	fair	Dec. 31, 10 p.m.	Jan. 4, 11.30a.m.	86	–	48	92	108	96	146	105	105·8
12	21	A. B.	8	5 11	dark	Dec. 31, 10 p.m.	–	–	6·5	48	50	146	78	160	No observations.	
13	23	A. B.	11	5 2	dark	Dec. 31, 12 p.m.	Jan. 7, noon.	156	–	50	68	104	96	156	104	106
14	20	O. S.	16	5 8	dark	Jan. 1, 1 a.m.	Jan. 7, 5.30p.m.	161	–	51	68	142	96	136	No observations.	
15	22	A. B.	14	5 3	fair	Jan. 1, 1 a.m.	Jan. 6, 9.50 p.m.	141	–	51	80	136	80	142	–	105
16	40	P. M.	33	5 8	dark	Jan. 1, 2 a.m.	Feb. 8, noon.	922	–	52	60	136	76	124	No observations.	
17	23	P. M.	34	5 8	dark	Jan. 1, 2 a.m.	–	–	5·25	52	60	112	78	124	No observations.	
18	20	O. S.	16	5 3	fair	Jan. 1, 2 a.m.	–	–	8·25	52	80	136	104	142	No observations.	
19	24	2nd C. aft. gd.	27	4 9	fair	Jan. 1, 8 a.m.	Jan. 5, 1.15 a.m.	113	–	58	100	134	108	142	104·5	105·5

West Coast of Africa.—Epidemic of 1865-66—*continued.*

Temperature. Evening. Minimum.	Temperature. Evening. Maximum.	Urine.	REMARKS, AND PECULIAR SYMPTOMS.
106	107·2	Solid, with albumen. Some sugar.	Low typhoid state; wandering, semi-comatose; vomiting dark black, with currant skin-like pieces; tongue cracked, dry, white; hepatic pain and tenderness; skin dark greenish yellow; bowels at first confined, then purged, dark watery stools; genuine caddy stools on third day.
–	–	Stains his shirt deep red (rosacic acid), ?	A severe case. Delirium, degenerating into low typhoid state, with paroxysms of violent pain in the stomach; constant copious black vomit; loss of sight tenth day; herpes on lips; petechiæ on extremities; gums spongy and bleeding; skin mottled yellow; hepatic pain and tympanitis; stools treacly and offensive.
105	108	Acid, then albuminous; bloody and bilious.	The worst case of all; symptoms extremely violent; wildly delirious, screaming, laughing, and shouting; gums spongy, and much hæmorrhage; hepatic pain and tympanitis; stools bloody and very offensive, and passed with great pain; sudden contractions of stomach, with paroxysms of violent pain and copious black vomit.
–	–	A peculiar oniony smell; highly albuminous.	Low typhoid state; wandering, picking bed-clothes, occasional paroxysms of wild delirious delusions, and then sink again to low mutterings; sanguineous exudations from gums, conjunctiva, &c.; black vomit; abdominal tenderness; remission fourth day; sordes on teeth, skin yellow, a rose rash on abdomen.
106	107	Tube casts, bile and blood corpuscles; highly albuminous, suppressed.	Wild delirium, pain on swallowing, muscular irritability; tenderness over bladder and right lobe of liver; skin deep greenish yellow, with sudamina; tongue dry, brown; stools dark, bilious, and passed under him; semi-comatose; cramp, and pains in dorsal region.
–	–	At first scanty and solid with albumen; towards end of illness copious; 6 pints to 16 pints, and containing sugar.	A settled conviction that "he was sent out here to die," and low desponding state degenerating into delirium. Intense thirst (he had been a hard drinker); subsultus tendinum; abscess in left parotid gland; epistaxis, gums spongy and bleeding, remissions, scaly eruptions, black vomit, abscesses in various parts.
–	–	Pale, large quantity, 5 quarts. No albumen. Oxalic and hippuric acid in excess.	A slighter case; impaired and double vision; vomit of undigested food, afterwards of bile; two yellow streaks down dry red tongue; abdomen tympanitic and tender all over; rheumatic pains in joints; deep yellow skin, passing off and succeeded by a couple of boils; purging and dark slimy stools; remissions.
–	–	Offensive oniony smell; highly albuminous, bloody and bilious, then hipp. ac.	Bad case; much black vomit, delirium; mucous membrane of mouth and nose spongy and bleeding; swallowing causes pain, like "fire" running down chest; tongue much contracted, brown; abdomen tympanitic and tender; pain on deep inspiration over liver; skin yellow; petechiæ followed by a large crop of boils.
106	107·5	Very dark, bilious, highly albuminous, suppressed.	Very bad case; wild delirium, swelling of tongue, subsultus tendinum, great muscular irritability; abdomen tympanitic, and very tender over bladder; skin deep greenish yellow; stools frothy, offensive, and passed with great pain; tongue covered with a thick white fur, moist, large, and tremulous; vomit choleraic.

Synopsis of Notes on Cases of Yellow Fever.—

Number of Case.	Age.	Quality.	Number of Mess.	Height.	Complexion.	Date of Attack.	Died.	Hours Sick.	Number of Days Pyrexia lasted.	Attacked after Exposure terminated.	Pulse.				Body	
											Morning.		Evening.		Morning.	
											Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.
				Ft. in.						*Hrs.*						
20	34	A. B.	10	5 7	fair	Jan. 1, 9 a.m.	Jan. 4, 4.30 a.m.	43	–	59	92	112	136	152	No observations.	
21	21	P. M.	31	5 8	fair	Jan. 1, 10 a.m.	Jan. 5, 2.10 a.m.	88	–	60	106	134	100	152	–	106
22	23	O. S.	15	5 4	dark	Jan. 1, 10 a.m.	Jan. 5, 2.45 p.m.	101	–	60	84	132	92	124	No observations.	
23	27	P. M.	34	5 8	fair	Jan. 1, noon.	Jan. 5, 8.30 a.m.	68	–	62	100	148	106	138	105	107·5
25	40	Corp., R. M.	33	5 9	fair	Jan. 1, 1 p.m.	Jan. 6, noon.	119	–	63	104	132	108	136	104	106·5
26	28	Boat'sumate.	4	5 3	fair	Jan. 1, 2 p.m.	Jan. 4, 10 p.m.	80	–	64	88	134	100	138	No observations.	
27	20	P. M.	31	5 8	fair	Jan. 1, 8 p.m.	–	–	4·5	70	46	126	60	124	No observations.	
28	20	O. S.	14	5 2	dark	Jan. 1, 8 p.m.	Jan. 10, 2 a.m.	198	–	70	84	138	104	152	105	106
29	22	O. S.	5	5 6	fair	Jan. 1, 10 p.m.	–	–	6·5	72	40	112	44	124	No observations.	
30	22	O. S.	28	5. 7	dark	Jan. 1, 11 p.m.	Jan. 5, 7.15 a.m.	80	–	73	82	100	86	126	102·5	107

West Coast of Africa.—Epidemic of 1865-66—*continued*.

Temperature. Evening. Minimum.	Temperature. Evening. Maximum.	Urine.	REMARKS, AND PECULIAR SYMPTOMS.
–	–	Tube casts, broken blood-cells, epithelium, and solid with albumen; suppressed.	Very bad, and early fatal case; vomiting copious, constant, and black, with shreds in it; skin very yellow; numerous petechiæ; tongue contracted, beefy, and bloody; wild delirium, calling out, and laughing; violent convulsions, which appear to be brought on by the vomiting; priapism and spermatorrhœa preceding death.
104	108	Scanty, dark, bilious, highly albuminous.	High fever, wandering, restless, and picking bed-clothes; great pain in joints; diminished sensation in legs up to knees; vomiting constant, bilious, slimy, and grumous; retains nothing; chloroform useless; mucous membrane of mouth spongy, bleeding; abdomen tympanitic and tender; convulsions, priapism, excoriation.
–	–	Bilious, blood-cells, and tube casts; solid with albumen.	Vomit constant, and excited by the slightest disturbance; at first, chlorodyne of use; left eye greatly congested; great muscular irritability, herpes on lips, hiccup; abdomen tympanitic and tender, especially over liver; skin deep greenish yellow; stools black like porter; tonic spasms, priapism, and spermatorrhœa.
105·5	108·4	Scanty, bloody, solid with albumen, suppressed.	Coup de barre and return of sensation, accompanied by violent tingling and itching of skin; coffee ground vomit, ejected violently and copiously; gums spongy and bloody; liver enlarged and tender; abdomen generally tympanitic and tender; skin deeply yellow, succeeded by scarlatina rash, sloughing of scrotum, spermatorrhœa.
106	108	Passed under him; loaded with albumen, suppressed for last thirty-six hours.	A slight remission, after which symptoms returned with increased violence; wild delirium, convulsions; gums spongy, bleeding; great epigastric pain; involuntary pale frothy stools; sudden, copious black vomit; trembling of facial muscles and working of alæ nasi; spermatorrhœa.
–	–	Tube casts, epithelium, and blood-cells; solid with albumen, suppressed for last thirty-six hours.	Symptoms gradually increased in severity; wandering, very irritable, getting up and calling out; aspect wild; vomiting constantly, black currant skins, &c.; blood in stools; involuntary black stools and griping; for last fifteen minutes violently convulsed (like tetanus); nurses could not hold him.
–	–	Acid; smells like rose-leaves, trace of albumen, large quantities of hippuric acid.	Remissions; vomit bilious, coup de barre, wandering; loss of sight on seventh day; mucous membrane of mouth spongy, bleeding; griping and pain over abdomen; cinchonised; skin very yellow; slimy, greenish-black paint-like stools; tongue, left side a red streak, right side dry, raw, afterwards a patchy fur.
104·5	108	Dark, bilious, and albuminous.	Coup de barre; complained of the bad water on board Isis; gums spongy; hæmoptysis; intense griping and purging of loose black slimy stools; vomit black, with currant skins, &c.; skin very yellow; petechiæ; spermatorrhœa ninth day, two hours before death, and again, with erection, immediately before.
–	–	Depositing lithates, trace of albumen, excess of hippuric acid.	Well-marked remissions; wandering and confused; vomit bilious; relapse fourth day, then worse than before; skin yellow; petechiæ on arms and legs; tongue irregularly patched yellow; cinchonised seventh day; stools slimy, like greenish-black paint; was better and worse for many weeks.
106	107·5	Acid, tube casts, epithelium, blood-cells, loaded with albumen, suppressed.	Drank bad water and felt sick on board Isis; wild, wandering, groaning; eyes glaring; decubitus dorsal; vomit black; tongue dry, red, beefy; great epigastric pain and griping; skin yellow; severe purging of pale frothy stools; hiccup; violent spasmodic convulsions (tetanic opisthotonos).

Synopsis of Notes on Cases of Yellow Fever.—

Number of Case.	Age.	Quality.	Number of Mess.	Height.	Complexion.	Date of Attack.	Died.	Hours Sick.	Number of Days Pyrexia lasted.	Attacked after Exposure terminated.	Pulse.				Body	
											Morning.		Evening.		Morning.	
											Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.
				Ft. in.						*Hrs.*						
31	20	O. S.	26	5 2	dark	Jan. 2, 4 a.m.	Jan. 10, 1.5 p.m.	201	–	78	60	132	92	140	102	106
32	21	O. S.	28	5 8	fair	Jan. 2, 2 p.m.	–	–	4·75	88	64	104	76	96	No observations.	
33	22	O. S.	7	5 5	dark	Jan. 2, 10 p.m.	–	–	6·5	96	54	132	62	108	No observations.	
34	19	O. S.	28	5 6	fair	Jan. 2, 11.30p.m.	Jan. 4, 5.10 p.m.	41	–	98	106	136	118	132	107	107·2
35	21	O. S.	28	5 8	dark	Jan. 3, noon.	Jan. 7, 6.50 p.m.	103	–	110	108	126	120	136	106	108
36	28	Chf. Yeomn. of Signals.	Chf. Petty Offrs.	5 6	fair	Jan. 3, 10 p.m.	–	–	9·5	130	54	136	60	124	No observations.	
37	19	O. S.	26	5 3	fair	Jan. 3, 10 p.m.	–	–	4·5	120	38	120	52	108	No observations.	
38	19	O. S.	19	4 10	fair	Jan. 3, 12 p.m.	Jan. –, 10 a.m.	156	–	122	104	132	110	142	103	106
39	21	O. S.	27	5 3	fair	Jan. 5, 12 p.m.	–	–	6·25	170	64	96	88	120	102	106
40	20	Captn.'s Servt.	Servt.	5 6	dark	Jan. 11, 6 p.m.	Jan. 17, 1.5 p.m.	139	–	308	92	118	72	124	106	107

The observations on the pulse and body heat were taken at 8 a.m. and 5 p.m. during

West Coast of Africa.—Epidemic of 1865-66—*continued.*

Temperature. Evening: Minimum.	Temperature. Evening: Maximum.	Urine.	REMARKS, AND PECULIAR SYMPTOMS.
104	108	Tube casts, broken blood-cells, fatty casts, some sugar, solid with albumen; suppressed last eighteen hours.	Coup de barre; singing in ears; muscæ volitantes (sees absent friends and hears music); loss of sight; gums spongy, bleeding; tongue swollen, cannot put it out; skin livid, greenish yellow; petechiæ; cadaveric odour; one black slimy stool; abdomen tympanitic, tender, œdema of ankles; violent convulsions (opisthotonos).
–	–	No albumen; trace sugar, large quantity, pale but low, specific gravity 1006·.	Not a severe case, but it brought on again mania, for which he had been in Exeter Asylum; dimness of sight fifth day; aspect dull and heavy; wandering and restless; vomit of undigested food; tongue tremulous, pale, flabby; pains in abdomen, confined bowels, remissions.
–	–	Smells oniony, stains his shirt red; albumen, fatty casts, and phos. and hipp. ac.	Complained of the bad water on board Isis making him sick; loss of sight; skin yellow; petechiæ, and a papular eruption; bowels confined; he fainted twice after passing black treacly stools; tenderness over bladder; vomit bilious; tongue dry, and then large, pale, flabby.
105	108·4	Scanty, albuminous, trace of sugar, suppressed for last thirty-one hours.	Very bad case; much wandering and groaning, laughing and crying, wild singing, and falls back exhausted; purulent matter collects in eyes; pain in chest; swollen tongue; constant copious, black, grumous vomiting; tenderness over bladder; skin deep greenish yellow; gleety discharge and sloughing of scrotum.
106·5	108·5	Albuminous, trace of sugar, tube casts, and blood globules; suppressed for last thirty-one hours.	A nurse to the first cases; coup de barre, and feet remained cold for some time; cough and pain in the chest; wandering, muttering; quiet; a *relapse*, and much worse; very intolerant of light and sound; constant black vomit; abdomen tympanitic and tender; skin greenish yellow, bowels confined, wild delirium.
–	–	Albuminous, bloody, suppressed.	Pain in chest and dyspnœa; he made many attempts to jump out of ports, though rational immediately before; great irritability of muscles; remissions and exacerbations every few hours; failing sight, voice altered, gums spongy and bleeding; abdomen tympanitic and tender. Had *epilepsy*, and was invalided February 8th.
–	–	Albuminous, suppressed for thirty hours, pale greenish, some hippuric. ac.	Loss of sight first symptom; distaste for sweets; wandering, troubled by dreams; cough; abdomen flat; skin yellow, followed by petechiæ; stools slimy, and smelling like onions; relapse; limbs stiff; is very anæmic; tongue dry, brown, then large, pale, flabby; relapse again seventeenth day.
105	108	Albuminous, bloody, suppressed.	Drank much bad water; coup de barre; cough, and muco-purulent expectoration; loss of sight; fainted at stool, after passing black slime and blood; skin yellow, voice altered, laughing, and picking bed-clothes; deaf, herpes on lips, gums spongy and bleeding; vomit black, shreddy; throat sore.
106	107	Albuminous, bloody, suppressed.	Pains in leg; giddy and loss of sight; feet swollen; vomit bilious, bloody; skin greenish yellow; bowels purged, stools slimy; skin dark greenish yellow; tongue large, pale, tremulous, after characteristic appearance passed away; relapse eighteenth day; wandering, vomiting, and diarrhœa.
107·5	108	Albuminous, suppressed, some sugar.	A nurse doing duty amongst ordinary sick; coup de barre; wandering, muttering; swelling of right side of face; herpes on lips; gums swollen, red; very impatient of light and sound; sixth day violent hæmorrhage from nose; dark scybalous stools; abdomen tympanitic and tender.

the first seven days, the patient having then either died or become convalescent.

TABLE showing the Frequency of the Pulse in Cases of Yellow Fever.—West Coast of Africa.—Epidemic of 1865–6.

Number of Case.	1st Day.		2nd Day.		3rd Day.		4th Day.		5th Day.		6th Day.		7th Day.		8th Day.		9th Day.		10th Day.	
	8 a.m.	5 p.m.	8 a.m.	5 p.m.	8 a.m.	5 p.m.	8 a.m.	5 p.m.	8 a.m.	5 p.m.	8 a.m.	5 p.m.	8 a.m.	5 p.m.	8 a.m.	5 p.m.	8 a.m.	5 p.m.	8 a.m.	5 p.m.
1	–	86	120	108	116	96	84	108	84	112	100	108	106	134	136	128	124	116	68	96
2	–	–	–	–	–	–	–	–	120	78	104	100	72	88	84	124	104	96	60	60
3	120	128	148	112	100	134														
4	–	142	118	132	96	146	88	100	80	104	72	84	88	132						
5	–	–	136	132	88	126	86	80	96	108										
6	–	–	132	124	90	116	108	86	64	132	136	108	64	80	42	46	48	60	56	110
7	–	120	108	124	96	96	88	84	116	108	124	104	112	124	72	108	108	96	42	38
9	124	108	104	124	92	92	84	64	128	116										
10	–	142	104	132	104	120	84	90	88	112	72	104	68	80	36	72	44	80	42	44
11	–	146	108	96	96	132	92	116	104											
12	–	160	146	132	94	116	80	92	50	78	86	124	96	116	56	72	68	96	64	60
13	104	156	92	148	80	96	80	116	68	130	84	136	72							
14	142	136	100	124	120	116	68	96	92	104	84	112	104							
15	136	142	100	124	80	86	92	116	112	88	124	80								
16	116	124	92	86	136	90	62	104	88	98	60	76	60	104	60	118	68	120	68	76
17	106	108	90	124	76	104	112	124	60	78	64	80	96	108	40	112	42	60	60	60
18	132	142	96	104	86	112	84	112	136	116	80	104	80	108	64	96	88	100	112	96
19	134	142	100	108	100	126	100													
20	112	142	96	136	92	152														
21	134	152	112	132	106	100	110	120	124	124										
22	–	–	92	96	96	92	84	124	132	118										
23	124	132	100	106	128	116	148	138	124											
25	–	108	124	120	112	136	104	136	104	124	132	126								
26	–	124	134	138	132	112	88	100												
27	–	104	98	124	126	104	116	60	46	64	72	96	68	68	60	70	60	70	64	68
28	–	152	138	124	100	120	96	104	84	132	96	136	108	124	96	104	84	104		
29	108	116	92	104	72	80	72	124	104	96	112	104	40	44	38	36	42	44	54	42
30	100	126	82	86	88	110														
31	120	136	96	92	60	112	132	124	132	140	92	116	100	128	96	112	104			
32	–	–	–	96	100	88	104	88	88	96	64	76	72	80	46	62	80	78	60	64
33	132	96	84	84	82	90	82	104	72	96	54	108	62	62	96	108	68	96	50	72
34	–	132	106	118	136	124														
35	–	–	108	120	116	132	122	136	126	132										
36	132	78	100	78	88	124	120	104	136	112	54	60	112	120	56	64	64	56	76	124
37	118	108	120	100	46	52	46	56	42	64	38	62	44	60	48	96	52	72	42	52
38	116	110	104	124	132	142	126	136	112	136	112	126	120							
39	88	120	72	104	72	104	96	108	84	98	88	96	64	88	56	84	56	60	72	84
40	–	90	112	118	92	124	96	72	118											
Average	119·9	125·3	107·3	114·4	98·	111·3	94·9	103·8	97·3	106·7	87·7	101·1	82·2	97·3	65·6	89·6	72·4	82·6	61·9	71·6
Maximum	142	160	148	148	136	152	148	138	136	140	136	136	120	134	136	128	124	120	112	124
Minimum	88	78	72	78	46	52	46	56	42	64	38	60	40	44	36	36	42	44	42	38
TOTAL	54	82	76	70	90	100	102	82	94	76	98	76	80	90	100	92	82	76	70	86

Diagram Nº I. Representing the range of Temperature of the Body in Case Nº 31.

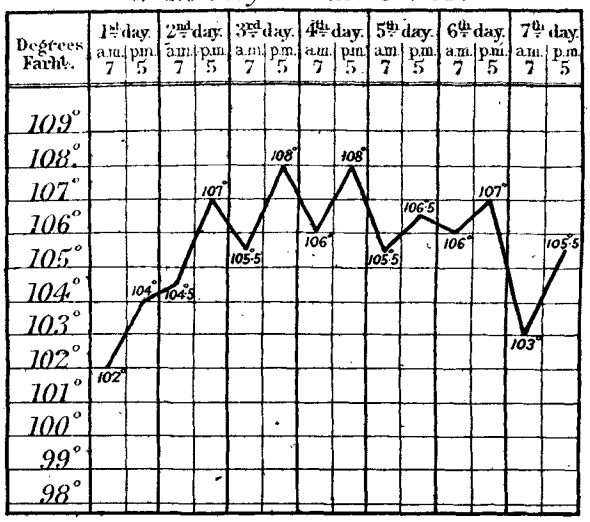


Diagram Nº II. Representing the range of Temperature of the Body in Case Nº 38.

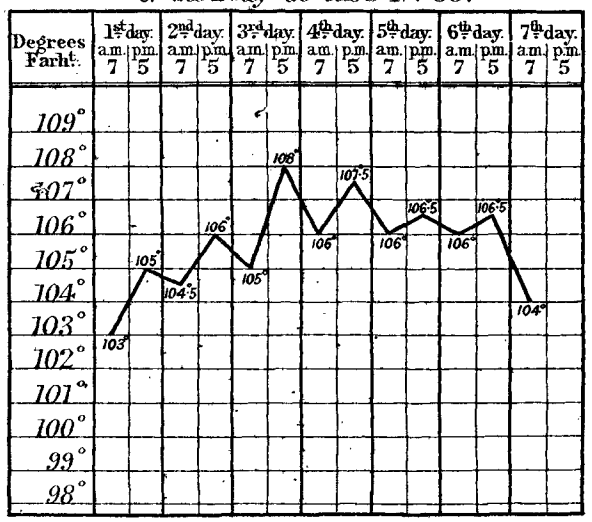
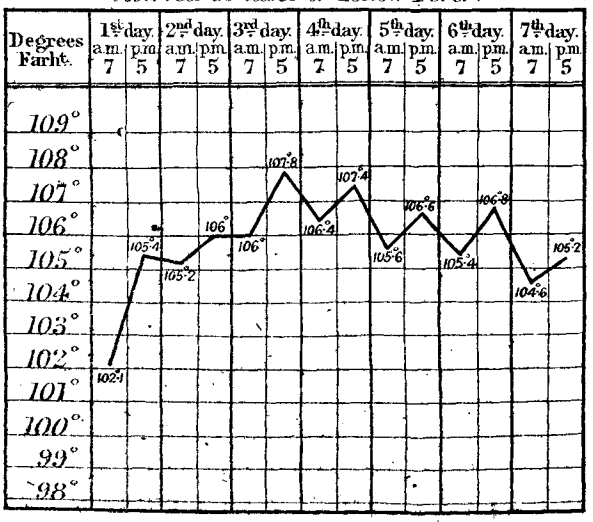


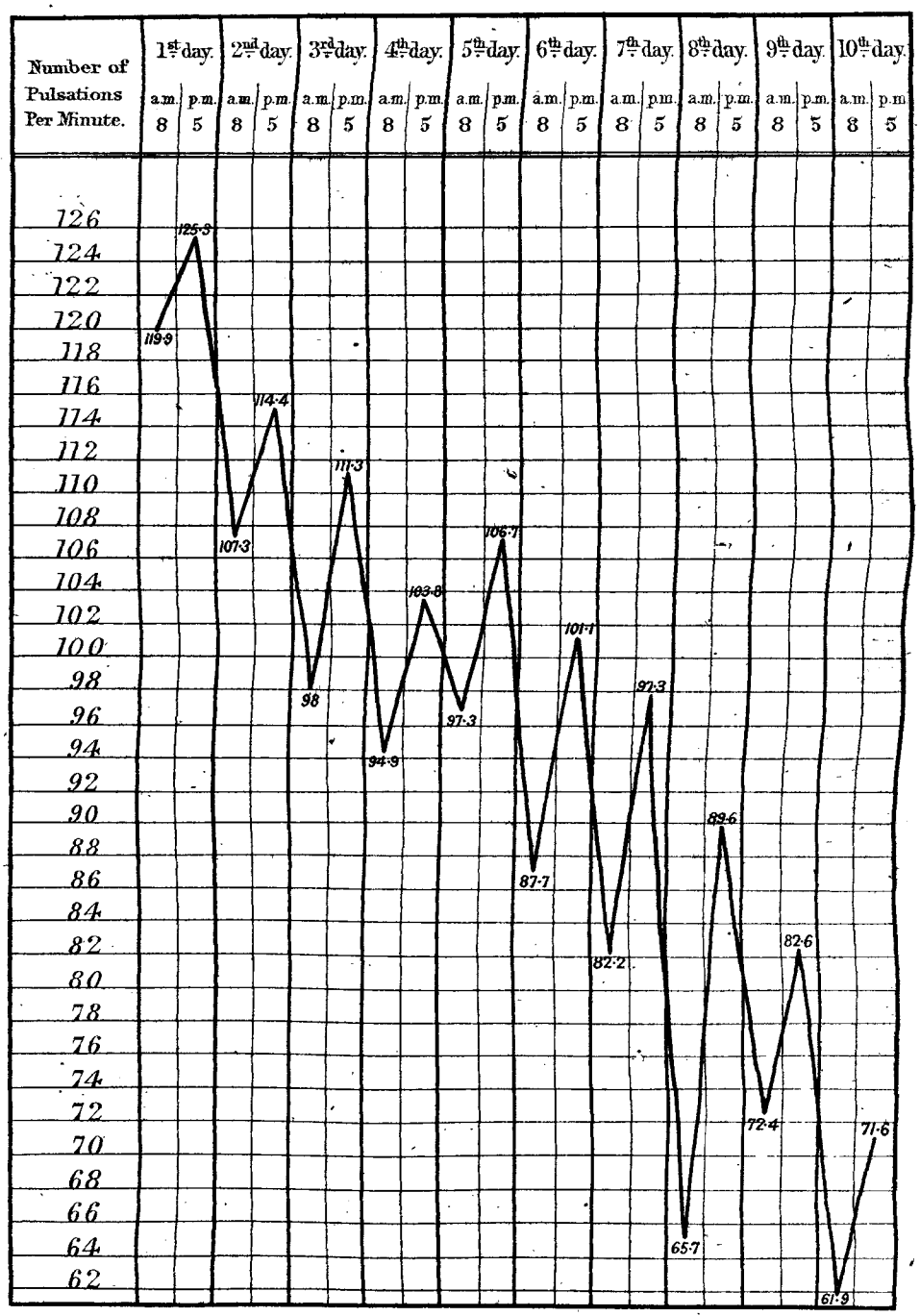
Diagram Nº III. Representing the Average range of Temperature of the Body, Observed in Cases of Yellow Fever.



to follow p. 40.

Diagram N°. IV. Representing the Average frequency of the Pulse in Cases of Yellow Fever.

All Cases are included in this Table, whether Mild or Severe.



The extraordinary fact that no one was attacked in this epidemic who had not at one time or other been on board the Isis, and that in no instance did the disease spread to the medical officers, or to the attendants on the sick, might reasonably create a doubt as to the specific character of the fever. That the disease was specific yellow fever, however, appears to be clearly indicated by the peculiar and protean character of the symptoms by which the cases were distinguished, and which were just such as occur in an extensive epidemic of that fatal disease, and that such marvellous exemption from infection should be granted to those who were in constant attendance on the sick and to those of the ship's company who had not visited the Isis, as well indeed as to many who had, is only one of those puzzling phenomena which are so liable to occur in all epidemics. Those who did contract the disease did so, however, from a notoriously infected ship.

The average duration of the fatal cases was 4·3 days. Four men died on the second day of the disease; two on the third; seven on the fourth; four on the fifth; three on the sixth; and two on the eighth.

A case of yellow fever appears in the Returns from the Espoir. It occurred in the person of an officer who, with another officer and fourteen men, took a Portuguese barque from the Bight of Benin to Saint Paul de Loando. They left Lagos on the 8th of March, and arrived at Loando on the 6th of April. Soon after their arrival this officer went on shore, and remained at the Vice-Consulate until his death. There was not any unusual amount of sickness on shore during the time these officers were there, but both of them had several slight feverish attacks. On the 9th of May the officer in whom the disease had a fatal termination, had what appeared to have been a more than usually severe attack. His case was looked upon by the Portuguese medical officer, under whose care he was, as one of pernicious remittent fever.

On the 12th there was hæmorrhage from the nose, fauces, and bladder, and on that night he vomited a frothy mucous matter mixed with streaks of brown discoloured blood. He became delirious, the urine became suppressed, finally coma set in, and he died on the morning of the 14th. There were no other cases of disease in the town, and the medical officer says:—

"There was no yellowness of the skin or conjunctivæ, but the skin of the face, neck, and infraclavicular region became unusually

 livid

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livid three or four hours after death. The immediate cause of death I attribute to uræmic poisoning from congestion and suppression of the secretory function of the kidney caused by the fever poison, but whether the poison of yellow fever or not may be left an open question, especially as the Portuguese medical officer declared the case to be one of pernicious remittent fever only. . . . . However, after careful consideration I have put down the case as yellow fever, although the symptoms were far from such as to free the diagnosis from doubts."

There was a case of yellow fever in the Isis, which proved fatal. In Table IV., however, two deaths from that disease appear in connection with this vessel. One of them was taken ill on the 29th of December of the preceding year, and died on the 1st of January. The other case occurred in the person of an officer who was seized on the 2nd of January, and died on the 7th. This was the last of the series of cases that occurred in the Isis, and so evident had the pestilential condition of the vessel now become, that positive instructions were issued that no fresh arrivals from England, nor supernumeraries of any kind, were to be permitted to go on board of her, and she was placed in strict quarantine with respect to the rest of the squadron.

Small-pox.—A single case of this disease occurred in a seaman of the Griffon, while the crew of that vessel were hulked in the Vindictive. No information is given as to whether the man had been previously vaccinated or not. It appears to be assumed that he contracted the infection when on shore with the rest of the crew after the shipwreck of the vessel. He left the shore on the 10th of October, and was placed on the sick-list for small-pox on the 20th. He had been complaining, however, for some days previously of rigors and pains in the back accompanied with nausea and vomiting. The case proved a mild one, and the disease fortunately did not extend to the ship's company.

Diseases of the Brain and Nervous System.—There was a considerable reduction in the ratio of cases and of mortality coming under this head, compared with the preceding year, but the invaliding rate was much higher.

A fatal case of disease of the brain occurred in a krooman of the Flora. Its history is thus given by the surgeon* of the Naval Hospital at Ascension, under whose care the man was :—

" . . . . æt. 26, krooman, a powerful man, was brought to the hospital

* Surgeon George Banks.

hospital on the 11th of July by his friends, who said that he had fainted. He was made to lie down, and had a stimulant given him, and a few hours after left the hospital of his own accord. I saw a man stumble against a corner of the building, and roll about and stagger like a drunken man; he shook his fist at some children who laughed at him, and believing him to be drunk I took no further notice of him. I did not at that time know he had been in the hospital. About 9 a.m. of the 12th he was brought again. His friends stated that the day before he had fallen down on the way to his work, after dinner. He had never complained previously, but had been noticed lately to walk unsteadily, and 'splutter in his speech,' and he was looked upon as 'going silly.' On admission he was quite sensible, and made most painful efforts to speak and make himself understood, but he was speechless, the tongue was swollen, and the saliva poured from his mouth. The countenance was anxious; he had but little control over the voluntary motions below the neck; he wiped his mouth with a towel with a jerk, as if he made an angry dash at it. He sat on the bedside, and stooped several times to pick up the towel, which was constantly falling from his hands, and he shook his head when the nurse said that his bowels had been moved; he could not swallow. The breathing was a little hurried, but the pulse was almost natural. Five grains of calomel were placed under the tongue, a blister applied to the back of the neck, and mercurial ointment rubbed inside the thighs and armpits. He continued sensible to the last, but gradually lost all feeling, and power of moving any part of his body, and died at 5.30. a.m. next day. A post-mortem examination of the body showed the brain and spinal cord in a perfectly healthy state, but in the centre of the pons varolii there was a softening about the size of a hazel nut, so soft as to resemble thick cream, or pus, through which the fibres of the nerves could be seen to pass. All other parts of the body were in a healthy state."

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A fatal case of meningitis occurred in the person of a petty officer of the Greyhound. He was the subject of an old standing stricture, for which catheters had on several occasions been passed. The meningeal affection seems to have been caused by the irritation occasioned by passing one of these instruments, the first symptom of the disease being a fit of convulsions which occurred some little time after one had been introduced. This was succeeded by hæmorrhage from the urethra, rigors followed by a febrile paroxysm, and accompanied with great mental depression. Vomiting then set in, which could not be restrained. Neither food nor medicine could be retained for any time. On the evening of the second day after his being placed on the sick-list, he suddenly became violently delirious; this terminated in convulsions, in which state he died. On post-mortem examination of the body the dura mater was found to be highly congested, as also were the vessels on the surface of the brain.

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The dura mater was also adherent at one spot on the edge of the longitudinal fissure near the posterior end; there was also slight effusion of lymph on the surface of the brain. There were no other abnormal appearances.

Two cases of delirium tremens were under treatment in the squadron during the year. One occurred in the person of an officer, the other in a marine.

Diseases of the Organs of Respiration.—There was a reduction in all the ratios coming under this head, compared with the preceding year. Three deaths occurred from inflammatory disease of the lungs. These took place in the persons of kroomen, who, as has been previously remarked in these reports, are very liable to diseases of the chest, and in whom they frequently run a very violent course.

Diseases of the Heart and Bloodvessels.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, but the invaliding and death rates were precisely as in 1865. Of sixteen cases of functional and organic disease of the heart, five were invalided, and one died. The fatal case occurred in the person of a petty officer of the Flora, whose attention appears to have been first called to his condition by œdematous swelling of the lower extremities. On applying to be relieved of this symptom, he was found to be labouring under a very much enlarged liver; the heart's action was tremulous, and the sounds confused, but there was a distinct bruit at the apex. After being on the sick-list of the ship for seventeen days, during which he did not improve, he was sent to the hospital at Ascension, where he died three weeks after his admission.

Diseases of the Alimentary Canal.—There was a considerable increase in the ratio of cases coming under this head, compared with the preceding year, but the invaliding rate was much lower, and they occasioned no mortality. The increase was altogether occasioned by the greater prevalence of diarrhœa in the squadron.

In the Bristol, in which there were eighty-two cases of diarrhœa, a number of them were attributed to eating shrimps and prawns brought off from the shore at Lagos, which appear to have been in a semi-decomposed state. They occasioned vomiting and intense griping and purging; ten men only were placed on the list on that occasion, but the complaint

was

was general amongst officers and men, no fewer than forty-six being under treatment within twenty-four hours, although not placed on the sick-list. Of the eighty-two cases, forty-six occurred in the first quarter of the year, and were attributed to change of food, irregularity in diet, eating unripe fruit, and over indulgence in fresh meat, especially pork, obtained from the natives.

There were five cases of dysentery and thirty-three of diarrhœa in the Greyhound. Of these, four cases of dysentery and twenty-one of diarrhœa occurred in the Christmas quarter of the year, when the ship was at Ascension and Saint Helena. The surgeon says:—

"During this period the sick-list has been high, chiefly owing to an outbreak of diarrhœa and dysentery, fifteen cases having been put on the list during the month of October. The first case was put on the sick-list on the 10th of the month, and as it seemed likely to be tedious the man was sent to hospital. The cause of this eruption of diarrhœa and dysentery appears to be congestion of the bowels from cold and chilly nights succeeding very hot days, and the Greyhound's crew being especially susceptible to the influence of this cause from having just come from the Coast of Africa. Diarrhœa was prevalent at Ascension at the same time, but was of a mild type. Those cases which appeared in the ship were introduced at first by rather high fever, but this as a rule subsided by the end of forty-eight hours, the looseness continuing for some time afterwards, and in some instances remaining from ten to seventeen days."

The only other vessel in which diarrhœa prevailed epidemically was the Oberon, in which, however, only eighteen cases were placed on the sick-list. Seventeen of these occurred in the Michaelmas quarter of the year, and were attributed to dietetic irregularities.

Diseases of the Genito-Urinary Organs.—There was a slight reduction in the ratio of cases of all classes of disease coming under this head compared with the preceding year, but the ratio of cases of syphilitic disease was rather increased. The increase, however, is due to the number of cases that occurred on board the Bristol, in which ship the disease was chiefly contracted in England.

Rheumatism.—There was a slight reduction in the ratio of cases coming under this head compared with the previous year, and a great reduction in the invaliding rate. It occasioned no mortality.

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Diseases not Classed.—A marine of the Bristol, who was sent to the Naval Hospital at Ascension on the 15th of January, labouring under a smart attack of fever, was affected with an abscess on the left side of the face, which was opened on the 19th, and a large quantity of pus evacuated. On the 20th the discharge continued to be very copious, and another swelling appeared under the angle of the right lower maxilla, and one on the inner side of the left ankle. When he was admitted into hospital the surface of his body was of a uniform yellow colour, as also were the conjunctivæ. The urine was of the colour of porter, and small in quantity. The alvine evacuations showed no appearance of bile. The yellowness now, however, began to fade, and he continued to improve up to the 25th. "But," the surgeon of the hospital reports:—

"the pain in the left foot was very severe, and his bowels had to be kept open by medicine. The swelling under the right maxilla contained pus, but was quiescent; the discharge from the abscess was still profuse; matter is forming on the inner side of the ankle. Appetite better, but he loses flesh. Stools darker coloured. Urine much the same. Yellowness of skin decreasing.—26th. Tongue has lost its brown, dry, character, and has a very peculiar appearance, like that of iridescence.—29th. Passed his water in bed unconsciously yesterday, and slept little last night, being restless and wandering. The tongue has become brown again; he is weaker, and refuses food. The abscess on the inner side of the ankle was opened, and a large quantity of pus evacuated. Another is forming on the outer side of the ankle. The matter which was collected under the maxilla has disappeared. Strength to be supported with wine, porter, beef-tea, milk, and jelly; and to take quinine and iron.—30th. Passed his evacuations unconsciously in bed last night; is restless, wanders, picks the bedclothes. Pulse soft and compressible; tongue dark and dry. Urine and fæces were natural; skin very much lighter. Opened two abscesses on the outer ankle, which discharged a large quantity of offensive pus, mixed with clots of black blood. He was ordered carbonate of ammonia, with tinct. lupuli, and the stimulants and nourishing diet were continued, of which he took some quantity. He was given thirty minims of tincture of opium at bedtime.—31st. Slightly improved, though still restless and wandering.—February 4th. Continues much in the same state, but decidedly improving. Ordered quinine.—6th. No sleep; wandering and restless. Pulse soft and full. Some bedsores on the nates; great discharge from abscess round ankle.—8th. Passed a very bad night, tossing about and wandering. Pulse failing. Skin of natural colour. Abscesses under the left ear nearly healed. Ordered three ounces of brandy, besides wine and porter; all of which he takes.—9th. Pulse weak and intermittent; does not know the people about him. Bowels open. Great discharge from abscesses. He soon after this became comatose, and died about 3 p.m.

3 p.m. Fifteen hours after death the left ankle was examined; the joint was completely disorganised, the capsule being broken down in all directions by sinuous abscesses, which burrowed upwards among the muscles of the calf of the leg. The articulating surfaces of the bones were very much ulcerated."

The fatal event in this case has been entered on Tables I. and IV. under the head of Pyæmia. Perhaps it should more properly have appeared under the head of yellow fever, as it was undoubtedly the sequela of that disease. His case, however, is entered under fever.

Wounds and Injuries.—One man sustained fatal fracture of the skull by falling from aloft; and a man sustained accidentally a fatal pistol-shot wound of the abdomen. A man while firing at a target had his foot jammed, by the recoil of the gun, between the combing of the hatch and the gun-carriage, almost completely severing his foot at the tarso-metatarsal articulation, from the effects of which he subsequently died.

Two men were drowned by falling overboard, one from a boat, and the other from the ship.

The total number of deaths was forty-four, which is in the ratio of 26·1 per 1,000 of mean force, being a reduction compared with the preceding year equal to 22·1 per 1,000. One-half of the mortality occurred in the Bristol, consequent on the disastrous epidemic of yellow fever by which that vessel was visited.

Invalided.—Thirty-eight persons were invalided for the sequelæ of fever; ten, for diseases of the brain and nervous system; fourteen for diseases of the respiratory organs, of whom eleven were phthisical; eight for diseases of the heart and bloodvessels; two for diseases of the alimentary canal; one for disease of the liver; nine for diseases of the genito-urinary organs; eight for rheumatism; two for diseases of the bones and joints; four for diseases of the special senses; eleven for diseases of the skin and cellular tissue; nineteen for diseases not classed; six for wounds and injuries of various kinds; and two for hernia. The total number invalided was 134, which is in the ratio of 79·7 per 1,000 of mean force, being a slight reduction as compared with the preceding year.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	579	308·9	29	17·2	5	2·9
Yellow Fever	30	17·8	1	·5	25	14·8
Intermittent Fever	87	51·7	8	4·7	1	·5
Small Pox	1	·5	—	—	—	—
Disease of the Brain	—	—	2	1·1	2	1·1
Apoplexy	2	1·1	—	—	—	—
Epilepsy	6	3·5	5	2·9	—	—
Paralysis	1	·5	2	1·1	—	—
Insanity	3	1·7	1	·5	—	—
Delirium Tremens	2	1·1	—	—	—	—
Neuralgia	8	4·7	—	—	—	—
Vertigo	5	2·9	—	—	—	—
Insolation	1	·5	—	—	—	—
Inflammation of the Lungs and Pleura	24	14·2	3	1·7	3	1·7
Phthisis and Hæmoptysis	19	11·3	11	6·5	—	—
Influenza and Catarrh	175	104·1	—	—	—	—
Cynanche	30	17·8	—	—	—	—
Asthma	4	2 3	—	—	—	—
Disease of the Heart, Functional and Organic	16	9·5	5	2·9	1	·5
Hæmorrhoids	12	7·1	1	·5	—	—
Varix	—	—	2	1·1	—	—
Disease of the Stomach and Bowels	4	2·3	—	—	—	—
Dysentery	20	11·9	—	—	—	—
Diarrhœa	222	132·1	2	1·1	—	—
Constipation and Colic	46	27·3	—	—	—	—
Disease of the Liver	6	3·5	1	·5	—	—
Jaundice	1	·5	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	3	1·7	—	—	—	—
Syphilis, Primary	60	35·7	—	—	—	—
Syphilis, Secondary	15	8·9	4	2·3	—	—
Gonorrhœa	54	32·1	—	—	—	—
Orchitis	27	16·	3	1·7	—	—
Stricture	13	7·7	2	1·1	—	—
Rheumatism	191	113·6	8	4·7	—	—
Gout	1	·5	—	—	—	—
Disease of the Bones and Joints	22	13·	2	1·1	—	—
Inflammation of the Eyes	29	17·2	3	1·7	—	—
Amaurosis and Cataract	10	5·9	—	—	—	—
Otitis and Deafness	5	2·9	1	·5	—	—
Erysipelas	1	·5	—	—	—	—
Scrofula	2	1·1	2	1·1	—	—
Bubo (*Symp.*)	26	15·4	—	—	—	—
Phlegmon and Abscess	710	422·6	—	—	—	—
Ulcer	229	136·3	9	5·3	—	—
Eruptions, &c.	40	23·8	—	—	—	—
Dyspepsia and Debility	164	97·6	18	10·7	—	—
Dropsy	3	1·7	-	-	1	·5
Worms	2	1·1	—	—	—	—
Headache	56	33·3	—	—	—	—
Purpura	-	-	1	·5	—	—
Pyæmia	-	-	-	-	1	·5
Wounds and Injuries	542	322·6	6	3·5	3	1·7
Burns and Scalds	21	12·5	—	—	—	—
Hernia	4	2·3	2	1·1	—	—
Drowned	-	-	-	-	2	1·1
TOTAL	3,474	2067·8	134	79·7	44	26·1

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	5,906	1,051	6,957	19·	11·3
Yellow Fever	215	302	517	1·4	·8
Intermittent Fever	1,127	618	1,745	4·7	2·7
Small Pox	15	43	58	·1	—
Apoplexy	23	-	23	—	—
Epilepsy	66	-	66	·1	—
Paralysis	11	103	114	3·1	1·8
Insanity	71	-	71	·1	—
Delirium Tremens	18	-	18	—	—
Neuralgia	30	-	30	—	—
Vertigo	23	-	23	—	—
Insolation	5	-	5	—	—
Inflammation of the Lungs and Pleura	313	250	563	1·5	·8
Phthisis and Hæmoptysis	359	482	841	2·3	1·3
Influenza and Catarrh	972	-	972	2·6	1·5
Cynanche	136	-	136	·3	·1
Asthma	127	-	127	·3	·1
Disease of the Heart, Functional and Organic	544	282	826	2·2	1·3
Hæmorrhoids	136	-	136	·3	·1
Varix	-	47	47	·1	—
Disease of the Stomach and Bowels	106	-	106	·2	·1
Dysentery	296	138	434	1·1	·6
Diarrhœa	1,233	230	1,463	4·	2·3
Constipation and Colic	248	6	254	·6	·3
Disease of the Liver	107	136	243	·6	·3
Jaundice	10	-	10	—	—

TABLE, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d*.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	36	67	103	·2	·1
Syphilis, Primary	1,253	731	1,984	5·4	3·2
Syphilis, Secondary	598	214	812	2·2	1·3
Gonorrhœa	859	—	859	2·3	1·3
Orchitis	354	281	635	1·7	1·
Stricture	87	175	262	·7	·4
Rheumatism	2,433	1,185	3,618	9·9	5·8
Gout	20	—	20	—	—
Disease of the Bones and Joints	280	141	421	1·1	·6
Inflammation of the Eyes	383	296	679	1·8	1·
Amaurosis and Cataract	86	—	86	·2	·1
Otitis and Deafness	41	3	44	·1	—
Erysipelas	41	—	41	·1	—
Scrofula	21	101	122	·3	·1
Bubo (*Symp.*)	454	—	454	1·2	·7
Phlegmon and Abscess	5,281	133	5,414	14·8	8·8
Ulcer	2,869	516	3,385	9·2	5·4
Eruptions, &c.	446	—	446	1·2	·7
Dyspepsia and Debility	1,088	1,348	2,436	6·6	3·9
Dropsy	58	—	58	·1	—
Worms	8	24	32	—	—
Headache	288	12	300	·8	·4
Purpura	15	127	142	·3	·1
Wounds and Injuries	5,120	727	5,847	16·	9·5
Burns and Scalds	211	—	211	·5	·2
Hernia	57	—	57	·1	—
TOTAL	34,484	9,769	44,253	121·2	72·1

TABLE, No. 3 - - - - - - - - -

SHOWING the Number INVALIDED from each Ship - - - - -

CAUSE of INVALIDING.	Antelope.	Bristol.	Dromedary.	Espoir.	Flora.	Greyhound.	Investigator.	Jaseur.
Continued and Remittent Fever	1	12	–	1	–	3	3	–
Intermittent Fever	–	5	–	–	–	1	–	–
Yellow Fever	–	1	–	–	–	–	–	–
Inflammation of the Brain	–	1	–	–	1	–	–	–
Insanity	–	–	–	–	1	–	–	–
Epilepsy	–	2	–	–	–	–	–	–
Paralysis	–	1	–	–	–	1	–	–
Inflammation of the Lungs and Pleura	–	2	–	–	–	–	–	1
Phthisis and Hæmoptysis	–	8	–	–	–	3	–	–
Disease of the Heart, Functional and Organic	–	4	–	–	–	–	–	–
Hæmorrhoids	–	–		–	–	–	–	–
Varix	–	1	–	–	–	–	–	1
Diarrhœa	–	1	–	–	–	1	–	–
Disease of the Liver	–	–	–	–	–	–	–	–
Syphilis, Secondary	–	3	–	–	–	–	–	–
Orchitis	–	1	–	–	–	–	–	–
Stricture	–	1	1	–	–	–	–	–
Rheumatism	–	2	1	–	1	1	–	–
Diseases of the Bones and Joints	–	1	–	–	–	1	–	–
Inflammation of the Eyes	–	2	–	–	–	1	–	–
Otitis and Deafness	–	–	–	–	–	–	–	–
Scrofula	–	2	–	–	–	–	–	–
Ulcer	–	4	–	1	1	–	1	–
Dyspepsia and Debility	–	1	–	–	3	1	7	–
Purpura	–	1	–	–	–	–	–	–
Wounds	–	4	–	–	–	–	–	–
Hernia	–	1	–	–	1	–	–	–
TOTAL	1	61	2	2	8	13	11	2

- - - - - - - - - TABLE, No. 3.

- - - - - employed on the WEST COAST OF AFRICA STATION.

Landrail.	Meander.	Mullet.	Oberon.	Pandora.	Pioneer.	Ranger.	Snipe.	Sparrow.	Speedwell.	Torch.	Vindictive.	TOTAL.
–	–	–	–	2	1	–	2	1	–	1	2	29
–	–	–	–	–	1	–	–	–	–	–	1	8
–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	1	2	–	5
–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	11
–	–	–	–	–	–	–	–	–	–	–	1	5
–	1	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	1	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	1	–	4
–	–	–	1	–	–	–	–	–	1	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	1	–	–	–	–	–	–	1	1	–	8
–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	1	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	1	1	–	–	–	–	9
–	–	–	–	–	–	–	–	–	3	–	3	18
–	–	–	–	–	–	–	–	–	–	–	–	1
1	–	–	–	–	–	–	–	–	–	1	–	6
–	–	–	–	–	–	–	–	–	–	–	–	2
1	1	1	2	2	2	2	3	1	6	6	7	134

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship

CAUSE OF DEATH.	Antelope.	Bristol.	Espoir.	Flora.	Greyhound.
Continued and Remittent Fever	–	–	–	–	1
Yellow Fever	–	22	1	–	–
Intermittent Fever	–	–	–	–	–
Inflammation of the Brain	–	–	–	1	1
Inflammation of the Lungs and Pleura	1	–	–	1	–
Disease of the Heart	–	–	–	1	–
Dropsy	–	1	–	–	–
Pyæmia	–	1	–	–	–
Wounds and Injuries	–	1	1	–	–
Drowned	–	–	1	1	–
TOTAL	1	25	3	4	2

- - - - - - - - TABLE, No. 4.

- - - employed on the WEST COAST OF AFRICA STATION.

Griffon.	Investigator.	Isis.	Jaseur.	Meander.	Pandora.	Ranger.	TOTAL.
1	–	–	–	–	2	1	5
–	–	2	–	–	–	–	25
–	1	–	–	–	–	–	1
–	–	–	–	–	–	–	2
–	–	–	–	1	–	–	3
–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	1
–	–	–	1	–	–	–	3
–	–	–	–	–	–	–	2
1	1	2	1	1	2	1	44

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Men Sick Daily, in each Ship;

C. Commissioned. P. O. Paid off.

Rate, &c.	NAMES of SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.
Fourth Rate	Bristol - - - S.C.	Sheerness -	4 Oct. 1865	35	3,027	S. 600
Sloop	Greyhound - - -	Devonport -	23 Sept. 1865	5	880	S. 200
Gun Vessel	Espoir - - - -	Devonport -	7 Nov. 1864	5	428	S. 80
	Griffon - - - C.	Sheerness -	16 June 1866	5	425	S. 80
	Jaseur - - - D.	Sheerness -	8 April 1863	5	425	S. 80
	Landrail - - -	Woolwich -	17 Jan. 1865	5	427	S. 80
	Lee - - - P. O.	Sierra Leone	1 July 1863	5	431	S. 80
	Mullet - - - C.	Sheerness -	5 May 1866	5	430	S. 80
	Pandora - - - -	Portsmouth	20 Mar. 1863	5	426	S. 80
	Ranger - - - -	Woolwich -	1 Mar. 1864	5	427	S. 80
	Snipe - - - -	Sheerness -	8 Aug. 1863	5	431	S. 80
	Sparrow - - D. & P. O.	Devonport -	23 Mar. 1863	5	430	S. 80
	Speedwell - - D.	Woolwich -	8 Sept. 1863	5	428	S. 80
	Torch - - - -	Chatham -	24 Feb. 1865	5	428	S. 80
Steam Vessel	Antelope - - C.	Woolwich -	12 July 1864	3	650	P. 260
	Investigator - - -	Lagos -	15 Aug. 1866	2	149	P. 34
	Oberon - - - S. C.	Sheerness -	17 Nov. 1865	3	649	P. 260
	Pioneer - - - -	River Congo	7 June 1865	-	142	S. 34
Store Ship	Dromedary - - D.	Woolwich -	28 May 1862	2	654	S. 100
	Flora - - - -	Ascension -	1 Feb. 1866	10	1,634	-
	Mæander - - P.O.	Ascension -	21 Jan. 1860	10	1,221	-
	Vindictive - - -	Portsmouth	24 July 1862	2	1,758	-
Receiving Ship	Isis - - - P.O.	Chatham -	Feb. 1861	2	1,321	-

- - - - - - - - TABLE, No. 5.

Cases; the Total Number of Days' Sickness on Board; the Average Number of and the Number Discharged to Hospital.

D. Returns defective. S. C. Station changed.

Period.	Average Complements.	Average *Complements* corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	*Average Number of Men* Sick Daily for Twelve Months.	*Ratio per 1,000 of* Average Force of each Ship.	Number discharged to Hospital.
1 Jan. to 30 Sept.	535	400	1,126	11,578	31·7	79·2	97
Year - -	195	195	426	3,902	10·6	54·3	32
Year - -	80	80	124	1,108	8·	37·5	16
1 Oct. to 3 Dec.	75	15	52	1,375	3·7	246·6	26
Seven months -	75	45	91	730	2·	44·4	4
Year - -	75	75	107	1,321	3·6	48·	2
1 Jan. to 15 July	55	30	66	509	1·3	43·3	1
1 July to 31 Dec.	80	40	70	615	1·6	40·	9
Year - -	80	80	90	1,167	3·1	38·7	2
Year - -	75	75	133	1,277	3·4	45·3	6
Year - -	75	75	82	1,160	3·1	41·3	3
26 Jan. to 17 Aug.	65	40	88	926	2·5	62·5	2
Nine months -	80	60	165	1,210	3·3	55·	5
Year - -	70	70	161	1,336	3·6	51·4	5
1 Oct. to 31 Dec.	120	30	89	1,126	3·	100·	26
Year - -	40	40	73	667	1·8	45·	5
1 July to 31 Dec.	95	50	112	1,343	3·6	72·	5
29 Aug. to 31 Dec.	40	15	11	53	·1	6·6	1
Year - -	90	90	103	731	2·	22·2	3
Year - -	100	100	134	1,232	3·3	33·	17
1 Jan. to 31 Jan.	75	5	3	9	—	4·	—
Year - -	65	65	166	1,333	3·6	55·3	3
1 Jan. to 20 Mar.	25	5	2	9	—	4·	2

TABLE, No. 6. - - - - - - - - -

SHOWING the Number of Cases of all DISEASES and INJURIES in each - -

DISEASE OR INJURY.	Antelope.	Bristol.	Dromedary.	Espoir.	Flora.	Greyhound.	Griffon.	Investigator.
Continued and Remittent Fever - - -	12	59	16	26	–	31	33	36
Yellow Fever - - - - - -	–	28	–	1	–	–	–	–
Intermittent Fever - - - - -	2	56	–	1	–	1	2	9
Small Pox - - - - - - -	–	–	–	–	–	–	1	–
Apoplexy - - - - - - -	–	–	–	–	–	2	–	–
Epilepsy - - - - - - -	–	3	–	–	1	1	–	–
Paralysis - - - - - - -	–	1	–	–	–	–	–	–
Insanity - - - - - - -	1	–	–	–	–	–	–	–
Delirium Tremens - - - - -	–	–	–	–	–	1	–	–
Neuralgia - - - - - - -	–	3	–	–	–	–	–	–
Insolation - - - - - - -	–	–	–	–	–	–	–	–
Vertigo - - - - - - -	–	–	1	–	1	2	–	–
Inflammation of the Lungs and Pleura -	1	8	1	–	–	1	–	2
Phthisis and Hæmoptysis - - - -	1	8	–	–	–	4	–	–
Cynanche - - - - - - -	–	8	–	–	–	9	–	–
Influenza and Catarrh - - - - -	2	21	4	1	4	21	7	–
Asthma - - - - - - -	–	–	–	–	–	–	–	–
Disease of the Heart, Functional and Organic -	–	7	–	–	2	1	1	–
Hæmorrhoids - - - - - -	–	3	–	–	–	–	–	–
Inflammation of the Stomach and Bowels -	1	1	–	–	–	1	–	–
Dysentery - - - - - - -	–	–	2	–	7	5	–	–
Diarrhœa - - - - - - -	7	82	11	10	8	33	1	1
Constipation and Colic - - - - -	3	4	1	–	4	7	–	2
Inflammation of the Liver - - - -	–	–	–	–	3	–	–	–
Jaundice - - - - - - -	–	–	–	–	–	–	–	–
Inflammation of the Bladder and Kidneys -	–	–	–	–	–	3	–	–
Syphilis, Primary - - - - - -	1	27	–	–	–	9	–	5
Syphilis, Secondary - - - - -	3	9	–	2	–	–	–	–
Gonorrhœa - - - - - - -	1	16	–	2	1	3	1	–
Orchitis - - - - - - -	1	5	1	1	2	2	–	1
Stricture of the Urethra - - - -	–	2	2	5	1	2	–	–
Rheumatism - - - - - - -	5	31	10	3	16	28	2	2
Gout - - - - - - -	1	–	–	–	–	–	–	–
Disease of the Bones and Joints - - -	–	6	1	1	–	4	–	1
Inflammation of the Eyes - - - -	1	15	3	–	2	4	–	–
Amaurosis and Cataract - - - -	–	–	–	2	–	*b* 7	–	–
Otitis and Deafness - - - - -	1	–	–	–	–	–	–	–
Erysipelas - - - - - - -	–	–	–	–	–	–	–	–
Scrofula - - - - - - -	–	2	–	–	–	–	–	–
Bubo (*Symp.*) - - - - - -	–	15	–	4	3	–	–	2
Phlegmon and Abscess - - - -	17	323	24	19	21	105	2	1
Ulcer - - - - - - - -	5	134	2	12	10	23	2	3
Eruptions, &c. - - - - - -	1	19	1	3	–	7	–	–
Dyspepsia and Debility - - - -	2	27	7	14	10	8	–	5
Headache, &c. - - - - - -	–	16	–	–	–	22	–	–
Dropsy - - - - - - -	–	–	–	–	–	2	–	–
Worms - - - - - - -	–	*a* 1	–	–	–	–	–	–
Wounds and Injuries - - - - -	19	177	16	17	35	74	–	3
Burns and Scalds - - - - - -	–	8	–	–	2	2	–	–
Hernia - - - - - - -	1	1	–	–	1	1	–	–
TOTAL - - -	89	1,126	103	124	134	426	52	73

a Dracunculus.

TABLE, No. 6.

Ship Employed on the WEST COAST OF AFRICA STATION.

Isis.	Jaseur.	Landrail.	Lee.	Meander.	Mullet.	Oberon.	Pandora.	Pioneer.	Ranger.	Snipe.	Sparrow.	Speedwell.	Torch.	Vladictive.	TOTAL.
1	32	9	5	–	16	10	34	–	39	23	21	45	52	19	519
1	–	–	–	–	–	–	–	–	–	–	–	–	–		30
–	–	2	–	–	–	1	–	2	–	2	3	1	1	4	87
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	6
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	1	–	–	–	–	1	–	–	3
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	2
–	–	1	–	–	–	1	–	–	2	–	–	–	1	–	8
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	5
–	2	3	–	–	1	2	–	–	–	2	1	–	–	–	24
–	–	–	–	–	1	–	1	–	–	–	–	1	–	3	19
–	–	7	–	–	–	1	–	–	1	–	–	–	3	1	30
–	16	8	11	–	3	–	14	2	4	7	11	7	15	17	175
–	–	3	–	–	–	–	1	–	–	–	–	–	–	–	4
–	–	4	–	–	–	–	–	–	–	–	–	1	–	–	16
–	–	1	2	1	–	2	–	–	–	1	–	–	2	–	12
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	4
–	–	2	–	–	–	–	1	–	–	–	–	3	–	–	20
–	7	5	4	–	3	18	2	2	1	4	4	5	9	5	222
–	1	–	–	–	4	–	–	1	2	1	6	5	2	3	46
–	–	–	–	–	–	–	–	–	1	1	–	–	–	1	6
–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	1	1	–	2	1	–	–	2	1	1	2	6	1	60
–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	15
–	2	3	2	–	–	–	–	–	1	1	3	8	5	5	54
–	–	1	–	–	1	2	2	–	3	1	1	2	1	–	27
–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	13
–	2	5	6	1	7	18	2	–	13	3	3	7	8	19	191
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	1	–	2	–	–	2	–	–	1	–	–	2	–	1	22
–	–	–	1	–	–	–	–	–	–	–	1	1	1	–	29
–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	10
–	–	1	–	–	–	–	–	–	–	–	–	–	3	–	5
–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	1	–	–	1	–	–	–	–	–	–	–	–	–	26
–	5	21	4	–	19	20	15	1	22	13	6	26	22	24	710
–	8	3	3	–	–	3	1	–	4	1	5	3	3	4	229
–	–	2	–	–	–	1	–	–	2	1	–	1	–	2	40
–	8	3	4	1	2	2	8	1	3	1[b]	12	12	11	23	164
–	–	1	–	–	–	11	–	–	–	4	–	–	–	2	56
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	3
–	–	–	–	–	–	a 1	–	–	–	–	–	–	–	–	2
–	6	18	21	–	9	13	7	2	30	14	9	29	1	29	542
–	–	–	–	–	1	2	–	–	1	–	–	3	–	2	21
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4
2	91	107	66	3	70	112	90	11	133	82	88	165	161	166	3,474

b Hemeralopia.

CAPE OF GOOD HOPE AND EAST INDIES.

Cape of Good Hope and East India Station.

THE squadron on this station in 1866, consisted of eleven vessels, viz., one of the fourth-rate; three of the sixth-rate; four sloops; two gun-vessels; and one receiving ship permanently stationed in Simon's Bay. The returns from ten of the vessels are for the whole year, from the eleventh for three months only. The mean force, corrected for time, was 1,850, and the total number of cases of disease and injury entered on the sick-list 3,443, which is in the ratio of 1861· per 1,000 of mean force, being an increase, compared with the preceding year, equal to 254·9 per 1,000. Of these eighty were invalided, and thirty-nine died, the ratio of the former being 43·2, and of the latter 21· per 1,000, both ratios being much in excess of those of the previous year. The highest sick-rates in the sea-going vessels were in the Octavia and the Penguin; the lowest in the Rapid and the Valorous.

The daily loss of service from fever, including the exanthemata, was equal to about twenty-five men, or in the ratio of 13·5 per 1,000; from diseases of the brain and nervous system the daily sick-rate was ·7 per 1,000; from diseases of the respiratory organs, 4·; of the heart and blood-vessels, ·5; of the alimentary canal, 3·5; of the liver, 1·2; of the genito-urinary organs, almost altogether venereal, 9·; from rheumatism, 4·3; diseases of the bones and joints, ·7; of the special senses, ·7; of the skin and cellular tissue, 19·; from diseases not classed, 2·5; and from wounds and injuries of various kinds, 8·5. The total number of men daily ineffective from disease or injuries was 132·4, being in the ratio of 71·5 per 1,000 of mean force, which is an increase, compared with the preceding year, equal to 10·5 per 1,000.

Fevers.—Four hundred and twenty-four cases of fever of a continued or remittent type; eighteen of ague; 169 of small-pox, and thirteen of measles were under treatment during the year; and of these, one of ague was invalided, and nine of primary fever, six of small-pox, and two of measles

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measles proved fatal. The average duration of each case of primary fever on board ship and in hospital was between nine and ten days; of each case of ague between twenty-one and twenty-two days; of each case of small-pox between twenty-seven and twenty-eight days; and of each case of measles about six days.

Continued and Remittent Fever.—There were twenty-three cases of primary fever in the Highflyer, eight of which are classed as remittent, and fifteen as febricula. The average duration of each of the former cases was about thirty days, and of each of the latter between five and six. Very little information is furnished with reference to these cases. Those of the remittent type appear to have been consequent upon exposure at Aden; they proved exceedingly tedious, and were characterised by great debility during convalescence.

In the Lyra there were thirteen cases of primary fever, two of which were remittent, and the remainder ephemeral. Both cases of the remittent type appear to have been contracted at Zanzibar.

There were 339 cases of primary fever in the Octavia, 166 of which are classed as febricula, and 173 as remittent fever. Of the latter, eight proved fatal. Almost all this disease occurred in the form of an epidemic, which invaded the ship in the Michaelmas quarter of the year, in the manner described in the following interesting report by the surgeon* of the vessel:—

"On the 10th of May Her Majesty's ship Octavia left Bombay for Trincomalee, where she arrived, under easy sail, on the 20th. One death occurred during the passage (from sloughing phagedena of the penis and scrotum), but the crew generally arrived at Trincomalee in very fair condition, the sick-list on the 1st of June numbering only forty-three, a large proportion of which were trivial cases of phlegmon and of diarrhœa.

"During the month of June the health of the ship's company continued satisfactory, although the weather was very hot, the mean temperature in the shade being 85 Fahrenheit, and only ten cases of fever were entered on the sick-list, all of which were of such a slight nature that I returned them in the Nosological Returns for the quarter, as cases of 'febricula,'—no remissions being observed, and the average time of treatment being only four days.

"During the month of July, however, there occurred forty-three more

* Surgeon Doyle-M. Shaw.

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more cases, twenty-two of which did show more or less marked periods of remission, and the average duration of which was nine days; the remaining twenty-one continuing to be of an ephemeral nature; and during August the epidemic influence seemed to become intensified, and the disease to become infectious,—no fewer than 202 fresh cases occurring, ninety-nine of which proved remittent, and of these fifteen ultimately assumed a typhoid form, seven of which ended fatally,—while all who were in immediate attendance on the sick (with the exception of an assistant surgeon and myself) were struck down by it; the remaining 103 cases, however, continuing to be merely of an ephemeral nature, each still averaging only four days' duration.

"On the 27th of August the Octavia left Trincomalee for Madras, where she arrived on the 2nd, and remained until the 28th of September. During that month sixty-two more cases occurred, only fourteen of which were, however, of so slight a nature as to be termed febricula; while the remaining forty-eight were remittent, and of them, four assumed a typhoid form, but none died. During October only two more cases occurred, both of which were ephemeral.

"The above data give for the three months of July, August, and September, the following return:—

——	Admitted.	Sent to Duty.	Invalided.	Died.	Total.
Febricula -	138	138	- -	- -	138
Remittent -	169	162	- -	7	169
TOTAL - -	307	300	- -	7	307

"With regard to the probable cause or causes of the epidemic. In the face of such facts as the following, viz.:—

"*First.*—That the crews of the other ships in harbour with us at Trincomalee during June, July and August (viz., the Wasp, the Lyra, and the Penguin) were remarkably healthy and almost entirely free from fever cases.

Second.—That during the same period there was no serious amount of disease among either the European or the native community of Trincomalee.

"*Third.*—That of thirteen officers from the Octavia, and several from the other ships above mentioned, who during those months went on shooting excursions into the jungle, for periods varying from one to seven days (during which they slept either on the ground, or in grass hammocks in the open air, and were therefore fully exposed to any existing malarious influences), only one experienced any bad effects from his exposure (and in his case, that of a lieutenant under treatment for remittent fever for eleven days in the

the early part of July, the attack was clearly attributable to a chill caught by sleeping on the ground in a damp cotton shirt, without any under flannel, or any other covering than a light tweed shooting coat), while all the rest returned both looking and feeling better than when they started.

"*Fourth.*—That during the aforesaid months, more especially July and August (and it must be remembered that it was not until July that the epidemic began to assume a serious form), the country round Trincomalee is more free than it is at any other season of the year from swamps and from decomposing vegetation, and for that reason, added to the fact of there being an almost constant breeze from the south-west (the south-west monsoon) with fine dry weather (the rain which the south-west monsoon brings to the west coast of Ceylon being intercepted by the mountains in the interior of the island, before it can reach Trincomalee), is accounted by the residents the healthiest season of the year,—to attribute the sickness to any terrestrial physical conditions would seem to be an assumption in opposition to all the facts directly bearing on the case.

"But again, in seeking for any cause within the ship, we find ourselves equally at fault; for the result of careful search repeatedly made and headed by the commodore, the commander, the master, and the chief engineer, as well as by myself, in the holds, bilges, tanks, &c. of the ship, only led to the unanimous conclusion that the vessel was throughout remarkably sweet and clean, while an additional circumstance that would remove still further the suspicion of the cause of the epidemic being within the ship, was, that out of nine men and boys, who, from the day the ship arrived at Trincomalee, were quartered on shore at Admiralty House, seven, as well as the commodore and his secretary, had, during the months of July and August, more or less small attacks of precisely the same form of fever as that which prevailed on board, although I would not attach much weight to that argument, as, of course, it is possible that those persons might have carried the seeds of the disease on shore with them from the ship.

"Neither in any one of such common causes of sickness on board ship as insufficient or unwholesome food, impure water, ill-adapted clothing, overwork, over-exposure to the sun, too frequent wetting the decks, or defective ventilation, or over-crowding, can I find any adequate explanation of so disproportionate an amount of sickness as we had on board this ship, as, although I believe there is decided room for improvement in all these respects, still I feel assured that the Octavia is and has been at least as well off in those points as any of the other ships I have mentioned, in which no such sickness prevailed.

"I am therefore forced to the conclusion, that the causes of the epidemic are not to be found exclusively in any morbific conditions, either of the locality or of the ship, but in the two combined; or, in other words, in the noxious influence of a certain (though, I believe, in this case very small) amount of malaria, which is of course inseparable from a locality like that of Trincomalee (at once paludal and littoral), even at the healthiest season of the year, operating on the frames of a large number of, for the most part, unacclimatised

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young men and boys* congregated together in the too limited space of a ship's decks, and previously more or less debilitated by fatigue, exposure to the sun, errors in diet, and previous illness; and I am also inclined to believe that exposure to draughts or chills at night was among the most active exciting causes of the disease. While, in the cases of those who caught the disease when attending upon the previously attacked, I consider the exciting cause to have been infection; strong and healthy young fellows being struck down by it, in several cases, within forty-eight hours after they assumed the duties of nurses, although they had been feeling quite well previously; and all, as I have already stated, who were in immediate attendance on the sick (with the exception of an assistant surgeon, the sickbay man, and myself) in turn succumbing to it. Moreover, the atmosphere in the ship became so deteriorated that it was found necessary to discontinue keeping any patients in the lower-deck sick bay, as cases even of simple ulcer took on a sloughing action, or were seized with the prevailing fever, after being kept there for a few days.

"Lastly, as to the typhoid form assumed by the nineteen cases I have alluded to, I believe that they were originally only cases of the prevalent form of remittent, but aggravated either by natural constitutional weakness, or by the patient delaying too long to apply for advice, or by his returning too early to duty and suffering a relapse, or by the untoward circumstance of the ship arriving at and anchoring off Madras at a time when the simpler form of fever was at its height with them, and all their symptoms being aggravated by the ceaseless rolling and creaking of the ship on that ever unquiet roadstead, and by the greater stagnation of the atmosphere within the ship there, from its being found necessary to anchor 'head to wind' instead of 'broadside-on,' as was done at Trincomalee, or to two or more of those untoward circumstances combined.

"In an epidemic numbering so many cases as the one under consideration, various grades of intensity of febrile action, and various incidental modifying circumstances in individual cases, were of course seen, by which the treatment was correspondingly influenced, but in the vast majority of the cases the symptoms and treatment were as follow:—The attack came on suddenly, and was ushered in by more or less marked rigors, intense frontal headache, pains in the back and limbs, nausea, sometimes vomiting, and complete prostration. The hot stage, or period of exacerbation, almost invariably set in in the well-marked cases early in the afternoon, and subsided shortly after midnight, the remissions being most complete in the early morning. In the majority of cases, however, the remissions were very slight; the pulse was generally full at first, but always soft, and its frequency not much increased, except during the exacerbations; the tongue generally coated, more or less yellow; thirst much increased; bowels generally confined; urine scanty and high coloured; inability to sleep always present.

The

* Sixty-five per cent. of the persons attacked were under 25 years of age, and the officers suffered in even a greater ratio than the men.

"The treatment consisted of, first, either a purgative dose of calomel and jalap and quinine alone; or that preceded by an emetic of ipecacuan, according to the degree of stomachic derangement present, and when spontaneous vomiting had not occurred. These were followed by small but frequently repeated doses of quinine in combination with sulphate of magnesia, dilute sulphuric acid, and nitrous æther, with vinegar-and-water to the head, tepid sponging of the body, and the free use of cooling drinks, (weak lemonade when there was no tendency to diarrhœa; barley-water and chlorate of potash when there was); and as soon as possible after the action of the bowels and kidneys had been re-established, and while no complication showed itself, quinine alone was administered. Where the vigilatio was very obstinate, chlorodyne in thirty minim doses, given at bedtime, was found to answer better than any other narcotic.

"By those simple means, the vast majority of the cases were enabled, as before stated, to return to duty in periods varying from seven to ten days; but in a few cases the subsequent debility was very protracted, and out of all proportion to the intensity of the febrile phenomena, lasting over three or four weeks, while in two cases the disease was followed by obstinate neuralgia of the head, which, in one, lasted for upwards of ten months, while the other has been invalided.

"In three cases the disease was apparently cut short at its very outset by violent epistaxis; but in almost every case the disease assumed an asthenic type from the very beginning, which rendered even local depletion inadmissible, and where epistaxis occurred, it was followed by alarming prostration.

"In the cases where typhoid symptoms showed themselves, wine or brandy was at once freely exhibited, while the administration of quinine was continued, in combination with tannic acid, to combat the tendency to diarrhœa, which, in such cases, was early shown.

"The three cases that terminated fatally in hospital (one at Trincomalee, and two at the General European Hospital at Madras) presented, I believe (like those who died on board), well-marked enteric complication, as well as the other common typhoid symptoms, although I am not aware that the characteristic rose-coloured eruption of 'dothen-enteritis' was in any case detected.

"I regret to say that a post-mortem examination was made in only one case, that of one of the men who died in the Madras Hospital; but I was informed that extensive ulceration of the bowels and inflammation of Peyer's patches were found in his case."

In one of the fatal cases in this epidemic, the immediate cause of death was profuse hæmorrhage from the bowels, consequent evidently on ulceration having laid open some large bloodvessel. The case was that of a young officer, who, after apparently progressing towards convalescence, suffered a relapse of all his symptoms in an aggravated form. Diarrhœa, which had previously existed, but not to an urgent extent, set in with great violence; the abdomen became swollen and tympanitic, and although he did not complain of abdominal

 pain,

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pain, there was slight tenderness in the right iliac fossa. No eruption could at any time be discovered, although careful search was repeatedly made for it. Delirium set in, and the stools were passed involuntarily in bed as often as eight or ten times in the twenty-four-hours. On the morning of his death, small quantities of blood appeared in his stools, and subsequently there was a sudden rush of blood from him, which continued at short intervals for nearly two hours, during which it was calculated that at least two pounds of pure blood passed from him, the unmixed fluid completely flooding the bed, and running on to the floor before the hæmorrhage ceased. Rapid collapse then set in, and in the evening he expired, consciousness not returning after the attack of hæmorrhage.

This severe epidemic had been preceded by a very extensive and fatal epidemic of small-pox, to which reference will hereafter be made.

None of the cases of primary fever in the Pantaloon, Penguin, Rapid, and Vigilant call for any comments. They were chiefly of a mild remittent type.

There were twenty-one cases of primary fever in the Wasp, one of which proved fatal. The majority of these cases occurred during the Midsummer and Michaelmas quarters of the year, and were considered attributable to exposure to malarial influences on boat service. One of the medical officers* who joined the ship at the time these cases were occurring makes the following remarks upon them:—

"On taking medical charge, I found thirteen men on the sick-list, five of whom were suffering from remittent fever contracted during the cruising, when they had a good deal of boat work and very wet weather. Of these cases one was convalescent, and discharged to duty in a day or two, but the remaining four were for some time under treatment, three of them being eventually sent to hospital at Trincomalee. I may here remark that the type of this fever appeared to me to differ from that to which I had been accustomed during my service in China. In the present instance I did not see the cases in their early stage, but when I first saw them the severe cases showed decided typhoid symptoms; badly marked remissions, no eruption, and a very prolonged and tedious convalescence, the men recovering their strength very slowly, although under rather favourable circumstances.

"In

* Surgeon William Anderson (a).

"In the remittent fever of China, most of the cases were also of a typhoid character, the remissions were better marked, a peculiar eruption was observed on the body and extremities, and the fever generally was of a more severe form. In the present instance I believe the fever had its origin in wet and exposure in boats while cruising along the coast, and if from miasma, it was, I suppose, mitigated by being carried by the wind from the shore to the ship, and boats; while the cases to which I refer in China, in the Marine brigade, between 1857-60, were among men quartered in Canton in the very centre of malaria, heat, and decomposition of vegetable matter."

Small-Pox.—There were 169 cases of small-pox under treatment during the year, 165 of which occurred in the form of an extensive epidemic in the Octavia, the remaining four cases being in the Highflyer. These latter appear to have had their origin from the Octavia, the first person attacked being an officer who had been on board that vessel on the 12th of March, when the first case that occurred in it was under treatment. A few days afterwards he felt unwell, and on the 26th of the month he was decidedly feverish, and complaining of abdominal pain extending round to the loins. He felt sick, but did not vomit. On the 28th he was covered with a mass of papular eruption perceptible to the touch, and all his uneasy feelings left him. Next day the eruption was more elevated, and the formation of pus had begun. The eruption was copious, though not confluent. He had been vaccinated. He was discharged to the Quarantine Hospital at Butcher's Island on the 1st of April, and placed under the care of the surgeon of the Octavia. His cabin was fumigated, the lower deck, steerage, holds, &c., were thickly sprinkled with disinfecting powder, additional windsails were hoisted, and everything was done to prevent the further spread of the disease. The medical officer* then in charge of the vessel says:—

"The ship's company was medically inspected, and those who had not been vaccinated, generally men who had joined from the merchant service, were at once operated upon. The vessel remained thirteen days after the case of variola was discharged to Butcher's Island, to give the incubatory period a fair chance, and on the evening of that day sailed for Seychelles. There were no indications of further spread. On the 15th of April another case exhibited itself in the person of an officer, and on the 16th two more cases. A hospital was erected abaft the quarter deck with yards and sails, the patients

* Acting Surgeon Arch. G. Robertson, M.D.

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patients were slung in cots, and six men 'well pitted' were told off to attend as nurses; they messed and kept by themselves under the forecastle, and were prohibited from going on the lower deck. Steam was got up, and greater progress made towards Seychelles than could be made under sail; the same precautions that were had recourse to in the first case were taken here, and by the time we came into harbour no other cases had occurred.

"The three patients were taken to an island three miles from the ship, where I visited them daily; the nurses accompanied them, and every article of clothing, sail, &c., was sunk in water for forty-eight hours, and scrubbed with disinfectants before its return to the ship. Not a bad or untoward symptom showed itself in any of the cases; they were all discrete. They returned to the ship and to duty on the 22nd of May."

The history of the epidemic of the Octavia is best given in the words of the surgeon of the vessel, who joined the ship on her arrival at Bombay with the disease prevailing on board:—

"Her Majesty's ship Octavia arrived at Bombay from England on the 17th of January, and on the 1st of March left there for the Persian Gulf. While lying at Bombay a slight epidemic of measles occurred among the officers and men of the ship; and among the subjects of it was a Krooman, who was sent to the general European Hospital on the 7th of February, and was discharged to to the ship as cured on the 1st of March.

"He seemed to be perfectly well when he returned to the ship, but four days after he presented himself with symptoms of variola in its confluent form, the ship being then three days at sea, on her way to Muscat.

"On inquiry it was ascertained that small-pox was then prevalent among the native population of Bombay, and that this man had, when in hospital, been placed in a ward next to one in which there were two cases of the disease.* On the 14th of the month he died on board while the ship was at anchor in Malcolm Inlet, Gulf of Oman, at the entrance of the Persian Gulf. It was not ascertained

* Extract from "Times of India" of the 13th of April 1866:—

"*Mortuary Return for Bombay for week ending April 13th* 1866:

"The deaths from small-pox have increased from 54 during the preceding week to 70 during the last week; having been, of Europeans, 1; Indo-Europeans, 0; Hindoos, 40; Mussulmans, 20; Parsees, 6; Jews, 0; Native Christians, 3; Chinaman, 0; unknown races, 0. The mean of deaths from small-pox in Bombay during the last ten weeks has been 40."

Extract from "Times of India" of the 27th of April 1866:

"The deaths from small-pox for the week ending April 27th have been 54, against 75 for the preceding week; from cholera five, against four for past week; from fever 234, against 267; from measles 28, against 30."

tained whether he had ever been vaccinated; but the virulence of the case, as well as the evidence of his fellow Kroomen on board, would lead to the conclusion that he had not been.

"As complete isolation as it was possible to maintain was enforced in his case by his being kept under treatment in the main-deck sick-bay, the door of which was strictly guarded, and no one allowed to enter but the medical officers and the sick-attendants; but, nevertheless, three days afterwards (viz., on the 17th of March) a petty officer was seized with symptoms of the disease. His attack proved one of the distinct or modified forms of variola, and he made a good recovery.

"In the course of the following day (viz., on the 18th of March) five more cases presented themselves with premonitory symptoms of the disease; on the 19th, eighteen more; and from that date up to the morning of the 22nd (when the ship arrived again at Bombay, and I joined her) the epidemic spread at the rate of thirty cases per diem, as shown by the Return below.

So that when I went on board on that morning I found 102 cases of either suspected or confirmed small-pox suspended in cots or hammocks along the main-deck, screened by sailcloth from the rest of the ship's company, no further measure of segregation being feasible after the epidemic had gained ground to such an extent.

"Return of Sick on Board Her Majesty's Ship Octavia, showing the Daily Increase of the Sick-list between the 18th and 29th of March 1866.

DATE.	Number on the Sick-List.										
	Officers.		Seamen.		Boys.		Marines.		Kroomen.		Total.
	Small-pox.	Other Complaints.	Small-pox.	Other Complaints.	Small-pox.	Other Complaints.	Small-pox.	Other Complaints.	Small-pox.	Other Complaints.	
March 18 - -	–	2	4	10	–	4	1	1	1	1	24
„ 19 - -	1	2	16	10	3	4	1	1	3	–	41
„ 20 - -	–	2	20	20	16	4	6	1	4	–	73
„ 21 - -	7	2	40	10	19	4	8	1	8	–	99
„ 22 - -	8	2	63	10	38	4	16	1	11	–	153
„ 23 - -	11	3	70	11	38	4	18	1	11	1	168
„ 24 - -	14	3	77	11	40	5	19	1	11	1	182
„ 25 - -	14	3	79	12	40	5	19	2	11	1	186
„ 26 - -	16	2	79	14	40	5	20	2	11	1	190
„ 27 - -	16	2	77	14	40	5	20	2	11	1	188
„ 28 - -	16	2	74	17	40	5	20	2	11	1	188
Total - - -	103	25	599	139	314	49	148	15	93	7	1,492

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"In consideration of this alarming state of affairs, it was wisely determined by the commodore, on the morning of the 22nd, to proceed at once past the usual anchorage at Bombay, and to anchor off a small island known as Butcher's Island, situated about six miles N.E. of the town, and in which there were known to be several empty and commodious buildings, formerly used as barracks by the Bombay Government. These were fortunately found to be in a good state of preservation; and requisitions were forthwith sent up to the barrack-master's department at Bombay for the necessary hospital furniture for 150 sick, while a fatigue party was landed to whitewash and clean out one of the buildings in which there was found to be ample space for the accommodation of sixty-five patients; and in the course of the following day (the 23rd) the sixty-five worst cases on board were landed and comfortably established in the said building; and, on the next day (the 24th) all the rest of the cases on board, sixty-one in number, presenting any incipient symptoms of the disease, were also landed and comfortably housed in another building, separated from that first mentioned by a distance of about 200 yards.

"On the following day (viz., the 25th), twenty more cases presenting premonitory symptoms of the disease were landed; on the 26th, thirteen; on the 27th, three; after which no more cases occurred among either the officers or men of the ship.

"On the 1st of April, however, an officer of the Highflyer was sent to me from his ship (then lying off Bombay), labouring under small-pox in its vesicular stage, and there seems to be great reason to believe that he also contracted the disease on board the Octavia, as he was first taken ill on the 24th of March, and, up to that date, the only known risk of contagion to which he had been exposed was on the evening of the 12th of that month, when he dined on board the Octavia at Malcolm Inlet, at which date the Krooman first affected was lying ill on board of the disease in its fully matured and most virulent stage. I am happy to be able to add, however, that the disease in this officer's case assumed that comparatively mild form of 'distinct' small-pox which has been called 'horn-pox,' and that he made a good recovery.

"Of the total of 163 cases landed at Butcher's Island, twenty-three developed into the confluent form of variola, fifty-seven into the 'distinct' form, and the remaining eighty-three did not go beyond the stage of primary fever, which was, however, in every case well marked in its characteristic symptoms of irritability of stomach, pain in the loins, drowsiness, great heat of skin, and frequency of pulse, and in some cases was very severe.

"Of the confluent cases, eight, as far as I was able to ascertain, were unmodified either by vaccination, by inoculation, or by a previous attack of the disease; and of the 'distinct' cases, five.

"Six deaths resulted from the disease, viz.—

"1st. That of the Krooman first affected.

"2nd. Another Krooman who was admitted to the sick-list on the 19th of March, and died in the stage of eruptive fever early on the morning of the 22nd, before the ship came to anchor off Butcher's Island,

Island, where he was buried the same afternoon. He had not been vaccinated, nor inoculated, as far as I could ascertain, and the eruption threatened to prove confluent in his case.

" 3rd. A petty officer, a man of intemperate habits, and aged 56. He was admitted to the sick-list on the 20th of March, and died in the pustular stage of the disease on the 27th; the disease was also confluent in his case. The primary and the secondary fever were nearly continuous with him, and of a very asthenic type, and all the worst symptoms of the disease, as sore throat, salivation, bronchitis, and hæmaturia supervened, and the patient seemed to sink overwhelmed by the depressing influence of the variolous poison; the pustules, moreover, being intermingled with petechiæ, and showing a black spot in the centre of each pock; while symptoms of congestion of the lungs and effusion of the brain, with sudden subsidence of the swelling of the face, set in before death. He also, as far as I could ascertain, had never been vaccinated.

" 4th. A Krooman, age unknown, but probably 30, also a confluent case, admitted on the 21st of March, died on the 30th, in the stage of secondary fever. He also, as far as I could ascertain, had never been vaccinated nor inoculated.

" 5th. A private of the Royal Marines, aged 26, also a confluent case, was admitted to the sick-list on the 21st of March, and died on the 2nd of April, in the stage of secondary fever, which, as in the case of the petty officer mentioned above, presented all the worst symptoms of the disease, and he also had not been vaccinated, as far as I could ascertain.

" 6th. A leading seaman, aged 26, a similar case to that last mentioned, admitted to the sick-list on the 22nd of March, and died on the 3rd of April; also presenting no marks of vaccination, and not aware that he ever had been vaccinated.

" All the other cases landed, recovered without suffering any permanent injury either from the disease itself or any of its sequelæ, excepting one case, that of a young officer, a naval cadet, in whom gangrene of the first, middle, and third toes of the left foot set in, necessitating their removal at their metatarsal articulations. He was subsequently invalided.

" Sixty-one of the eighty-three cases mentioned as having shown no signs of the characteristic eruption of small-pox, were discharged to duty within a fortnight of their admission to the sick-list; all feverish symptoms having left them a few days after landing, and no other signs or symptoms of disease having shown themselves for periods varying from a week to ten days before they re-embarked; previous to which, moreover, the precaution was taken of having all their kits thoroughly scrubbed and purified.

" Before the end of April, forty-two more cases had returned to their duty on board, and although the common sequelæ of boils, ulcers, abscesses, suppuration of the glands of the neck, and sloughing of the skin, proved in several cases very distressing, all the remainder had also returned to duty, with the exception of four whose convalescence was retarded; one (referred to above) by gangrene of the feet, one by obstinate ulceration of the face, and two by debility.

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The foregoing data give the following results:—

Nature of Cases.	Number admitted.	Sent to Duty.	Died.	Invalided.	Total.
Confluent -	23	16	6	1	23
Distinct - -	57	57	- -	- -	57
Primary fever only - -	83	83	- -	- -	83
Total - -	163	156	6	1	163

"And, with regard to the apparent amount of protection afforded by vaccination, the following statistics are obtained, viz.—

"On the 1st of March, when the Octavia left Bombay for the Persian Gulf, there were on board 610 officers and men (ninety-five of whom were supernumeraries).

"Of these, 589 were 'protected' by vaccination, and twenty-one, fourteen of whom were Kroomen shipped at Sierra Leone when the Octavia was on her way out from England in October of last year, were 'unprotected.'

"Of those protected, 437 escaped altogether, while 147, or 24·9 per cent., were only attacked with symptoms of primary fever, or with the disease in a 'distinct' and comparatively mild form, all of whom recovered; and only five, or ·8 per cent., with the confluent form, and those also all recovered.

"While of the 'unprotected,' all were attacked; eighteen, or 85·7 per cent., with the disease in its confluent form, of whom six died; and three, or 14·2 per cent., with severe attacks of the distinct form, all of whom, however, recovered. It was, perhaps, a further illustration of the protective influence of vaccination, that not one of some forty officers and men who were re-vaccinated in the early part of April proved susceptible to the operation, or, to use the ordinary expression, 'took.'

"With regard to the special measures taken to mitigate the severity, and to prevent the further spread of the epidemic, after I joined the ship on the 22nd of March, and the sick were landed on the 23rd and the four following days, I may mention:—

"1st. That the ship, after being sprinkled with M'Dougall's Disinfecting Powder, all over her decks and in every nook and cranny, was thoroughly scrubbed with soap-and-water, and then whitewashed; and the bedding and kits of the men were at the same time washed and aired.

"2nd. All communication, not absolutely unavoidable, was cut off between the ship and the shore.

"3rd. As complete segregation as possible of the sick on shore was maintained, the confirmed cases being placed in a building by themselves, and those labouring under only 'primary fever' being strictly prohibited from going near them; and the volunteers who had

had been acting as attendants on the sick previous to disembarkation, several of whom had never had small-pox, being replaced by those who had had the disease; so that after the first week or so there was no one in actual attendance upon the sick on shore, who was not so protected, excepting the assistant-surgeon and myself.

"4th. Over-crowding in the wards was obviated by discharging to the ship, without loss of time after they had had their kits all thoroughly scrubbed and purified, all men fit for duty and no longer required on shore; and by spreading out the cases in the wards as much as possible.

"5th. Free ventilation was promoted in the wards by having the doors and windows kept constantly open day and night, care being taken to prevent the wind blowing directly on any patient.

"6th. The wards were swept out, and sprinkled with M'Dougall's Disinfecting Powder morning and evening, the patients' beds being thoroughly shaken at the same time, and clean linen supplied in all the bad cases every morning; cotton sheets, pillow-slips, nightshirts and towels, being purchased at Bombay by an order from the Commodore.

"7th. Medical comforts (including ice, fresh meat, vegetables, bread, and eggs, sufficient for the requirements of the daily number of sick) were also obtained every morning from Bombay by means of the steam launch.

"8th. 'Dhobies,' or washermen, and 'jarru-wallahs,' or scavengers, were hired from Bombay.

"9th. All 'excreta' were promptly removed from the wards, and sprinkled with disinfecting powder (a large supply of which was obtained from the health officer at Bombay, on a requisition from the Commodore) until they could be carried away and emptied into the sea by the 'jarru-wallahs,' who cleaned out the privies morning and evening.

"10th. All bed and body linen removed from the patients was soaked for six hours in solution of chloride of zinc, then boiled, and then washed in soap-and-water by the 'dhobies.'

"11th. The wards were whitewashed once a fortnight by convalescents.

"12th. The only water used for dietetic or culinary purposes was condensed water obtained from the ship, the water on the island, although good enough, and used accordingly for washing, having been found to contain an amount of organic impurities that rendered it totally unfit for the former purposes.

"13th. All the officers and men of the ship who had not had the disease, or who did not show distinct marks of previous vaccination, were re-vaccinated. (Although the operation was performed, however, by a Government vaccinator, who was sent over from Bombay for the purpose, and the number operated on was upwards of forty, not one 'took,' showing, perhaps, that all those on board susceptible to the variolous poison had already contracted the disease.)

"14th. The bodies of those who died were at once removed to a detached dead-house, and sprinkled plentifully with disinfecting power, and their burial was accomplished as soon as possible; the

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graves being dug on the island, and covered thickly with charcoal and lime.

"15th. A double ration of spirits or beer was allowed to every nurse in attendance upon a confluent case.

"16th. Mosquito curtains and fans were supplied to all the worst cases.

"With regard to the disinfecting preparation to which I have so frequently made allusion, I have to remark that I used it in the three different forms in which it has been patented; viz., the powder, the fluid, and the ointment. That I found the powder a most powerful deodorizer and antiseptic in every way in which I used it; whether on board the ship, in the wards, in the dead-room, in the dirty-clothes room, or in the privies, immediately supplanting with its own somewhat refreshing odour the sickly or offensive smells arising from the substances with which it was brought in contact. Secondly, that the fluid, diluted with four times its bulk of water, proved a very refreshing and, I believe, antiseptic lotion and gargle. And, thirdly, that the ointment also proved most useful in the only way in which I employed it; viz., smeared over the legs of the bedsteads to prevent insects crawling into the beds of the patients, which they (especially black ants) did to a most harassing extent when we first took up our quarters on shore.

"I am not prepared to say that, either as a deodorizer or as an antiseptic, it is more powerful than Sir William Burnett's Solution of Chloride of Zinc; but, while it possesses the great advantage of being free from all poisonous properties, it further, I believe, costs less, and is at least equally powerful. Its being a powder, instead of a fluid, also makes it a preferable agent in cases where it is desirable to avoid damp, while its refreshing odour is, I consider, no slight additional recommendation.

"With regard to the therapeutic treatment of the disease: in the milder cases it was confined to simple dieting, keeping the patients as cool and clean as possible, and attending to the state of the bowels; while in those in which the febrile symptoms ran high, and delirium set in, opiates, with blisters to the nape of the neck, proved decidedly beneficial.

"The only ectrotic treatment employed was gently sponging the face and limbs morning and evening with the diluted disinfecting fluid, but that was done less with a hope that it would in any degree prevent 'pitting,' than with a view to refreshing the patient.

"In the advanced stage of the secondary fever, and throughout the convalescence, tonics, nutritious diet, and wine or beer, were always indicated, and given with evident advantage.

"Throughout the epidemic we were very much favoured by the weather, light breezes (the full effect of which was felt on Butcher's Island) having prevailed almost constantly; and the thermometers have ranged between 85° (Fahr.) at noon and 73° at night, which was comparatively cool for Bombay in April."

This excellent report is very interesting and instructive. The arrangements adopted in combatting so formidable an epidemic

epidemic reflect the greatest credit on all concerned; and to the promptitude and energy with which they were carried out, the arrest of the disease is in all probability to be attributed. The observations on the protective influence afforded by vaccination are particularly valuable, and clearly indicate the urgent necessity there is of taking every precaution to ascertain that every member of a ship's company presents undoubted marks of an efficient vaccination having been performed upon him at some period of his life. Careful observation appears to point out that the changes undergone in the system at the period of puberty materially diminish the protective influence of vaccination performed in childhood; and it is proposed by those most largely experienced in this subject that in all cases there should be a re-vaccination at, or soon after, fifteen years of age. If this be necessary with the civil community, how much more important it must be to such a service as the Royal Navy will be very evident, and hence the propriety of considering whether every man and boy should not be vaccinated on his first entry into the service, however well-marked may be his primary vaccination cicatrices.

Measles.—Thirteen cases of this form of eruptive fever were under treatment during the year, of which two proved fatal. Eleven of the cases occurred in the Octavia, at Bombay, in the Lady quarter of the year, but little information is given respecting them. The majority were discharged to the General Hospital at Bombay, where the two fatal cases occurred, death being occasioned by the supervention of pneumonia.

There were two cases of measles in the Pantaloon, the disease in both instances appearing to have been contracted by communication with the Octavia at Bombay.

Diseases of the Brain and Nervous System.—There was a trifling increase in the ratio of cases coming under this head, as compared with the preceding year, but the invaliding and death-rates are almost precisely the same.

There were three deaths from apoplexy; two of these occurred in the Highflyer and one in the Wasp. In the former vessel the persons affected were a signalman, who while under treatment for rheumatism died suddenly. On post-mortem examination of the body, the heart appears to have been the only organ examined. It was said to be in a

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state of atrophy, being unusually small, and very pale and flabby. The second case occurred in the person of an engineer officer, who when on watch, the ship being then under steam, felt faint, and asked one of his brother officers to take his place for the remainder of his watch, while he lay down. On being relieved he went to the bath-room, where he remained so long that his comrade went to look after him, and found him insensible, from which state he never recovered. In this case also, the thorax seems to have been the only cavity examined after death. The heart was said to be very small, and almost covered with fat. It is impossible, from the meagre and imperfect character of the post-mortem examinations made in these two cases, to arrive at any satisfactory conclusion as to the cause of death.

The fatal case in the Wasp appears to have been one of congestive apoplexy, from the combined effects of alcoholism and submersion. It occurred in a seaman, one of a boat's crew, who while on shore got intoxicated, and in that state fell into the water, where he remained for some minutes, it is said, before he was got out. When first seen by the medical officer, he was lying on the pier at Seychelles, partially undressed and making a moaning noise. He was at once taken off to the ship, and Sylvester's method of restoring suspended animation employed, and apparently with partial success. He vomited a large quantity of offensive fluid, and after an hour's application of the method, he seemed better, and breathed comparatively with ease. He continued insensible, however, apparently from the effects of the liquor he had drunk, and from this state of insensibility he never rallied. No examination of the body appears to have been made after death.

There were five cases of delirium tremens in the squadron. Two of these occurred in commissioned officers, and one in a seaman. The ratings in the remaining two cases cannot be ascertained.

Diseases of the Organs of Respiration.—There was a considerable reduction in the ratio of cases under this head, compared with the preceding year, but the invaliding rate is much higher, and four deaths resulted from them, while in 1865 there was no mortality under this head.

Diseases of the Heart and Bloodvessels.—There was a great reduction in all the ratios coming under this head, compared with

with the previous year. Only seven cases of functional or organic disease of the heart were under treatment during the year, and of these, one was invalided and one died.

Diseases of the Alimentary Canal.—Under this head also there was a considerable reduction in the ratio of cases, and in the death-rate, as compared with the previous, year but the ratio of invaliding was increased.

A death from obstruction of the bowels occurred in the person of a servant of the Vigilant; he was a native of Trincomalee, of the Tamil race. He was placed on the sick-list on the 27th of February, suffering from colicky pains, and it was ascertained that his bowels had not been moved for five days. Purgatives and enemata were given without effect, vomiting set in, and the bowels continued unmoved. On the evening of the 28th, however, an enema had the effect of clearing the lower part of the bowel apparently, but did not reach the seat of disease, for although followed by some relief, the vomiting and general anxiety of countenance continued. The obstruction appeared to be of a mechanical character, as there was no fever, and no inflammatory symptom of any kind. He continued in very much the same state until the 6th of March, when the disease seemed to take a favourable turn; he passed a few small stools, was in good spirits, and expressed some desire for food. It was hoped that the obstructions might have been of a spasmodic character, and that it had yielded to the influence of the opium he was taking. On the afternoon of the same day, however, he was suddenly seized with acute pain in the abdomen, and writhed and twisted about in agony. Retching and vomiting returned. On the 7th there was no improvement; the skin was cold and clammy, the pulse feeble, the abdomen much distended and tympanitic. No motion from the bowels. On the 8th he appeared to rally a little in the morning, but in the afternoon collapse suddenly set in, and he expired. The following report of the post-mortem examination of the body is by the surgeon* of the ship, from whose extended report the above abridged history of the case is taken.

"Belly very tympanitic, body somewhat emaciated. On opening the abdomen, a most offensive gas escaped, accompanied with some dirty looking fluid, apparently containing a quantity of fæces in it.

On

* Surgeon Gordon Jackson.

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On the cavity of the abdomen being exposed to view, the whole of the anterior aspect was occupied by a coil of small intestines, so called, but in this instance dilated to quite twice the size of an ordinary great intestine. The great omentum was thin and its vessels congested; there was no sign of peritonitis. Two ligatures having been applied to the duodenum, and the intervening space cut, the bowels were removed, and having been slit up, were examined. The duodenum was healthy, and presented no trace of disease. The jejunum was also healthy, and, with the exception of being much dilated, was in a normal state. In the upper part of the ileum there was no appearance of disease, but on approaching its junction with the colon, signs of congestion (at first slight, but near the ileo colic valve most intense) were found. The congestion occupied a space of about eight or nine inches; the gut was enormously distended; perforation of the bowel had taken place in this situation in two places, the two ulcers being each about the size of a sixpence, and in the same part of the gut there were about twenty spots, so thin that it was surprising they had not given way before. The gut contained fluid fæces, with several lumps, but no very unusual amount of hardness. There was no trace of impaction. Close to the junction of the ileum and caput cæcum, for about two inches and a half in length, the ileum was much thickened and the canal almost impervious. At first, indeed, I thought it was impervious, but further trial proved that a small passage remained. There was but little hardness about it, the structure being like organised lymph, but from its seat it is not likely to have been so. Here, no doubt, was the cause of the symptoms. The colon, excepting just at the lower part, near the ileum, was quite empty. About the caput coli there was some congestion, but not much; otherwise the gut was healthy. The vermiform appendix was about five inches long, and contained fluid fæces. The bladder was empty."

Dysentery and Diarrhœa.—Twenty-four cases of dysentery and 223 of diarrhœa were under treatment during the year, and of these, one case of dysentery proved fatal, and one of diarrhœa was invalided.

There were nine cases of dysentery and nineteen of diarr[illegible] in the Highflyer. Very little information, however, has been furnished in connection with these or any other diseases from this vessel.

In the Lyra there was one case of dysentery, and twenty of diarrhœa. The dysenteric case must have been a very mild one, as the man was only four days under treatment. A good many cases of diarrhœa occurred at Trincomalee. The surgeon says:—

"During the latter part of our visit, diarrhœa became very prevalent amongst the ship's company, but though there were many applicants for relief, only a very small proportion were placed on the sick-

sick-list. It appears to have been caused by the water supplied from the shore. Very little rain had fallen for some weeks, and the supply in the dockyard was failing. When drawn from the well it had a turbid milky appearance, with a slight yellowish green tinge. After standing for some time it became clearer, though not so much so as ordinary spring water, and it had a brackish and unpleasant taste. When deposited in the tanks for a few days, decomposition appeared to have taken place, a most offensive odour being evolved from the vessels containing it, due probably to the organic impurities which it held in suspension or solution. Lime was in excess, as were also chlorides; they were shown by the usual tests. Materials were not at hand to ascertain other inorganic constituents. The whole of the men attributed their complaint to 'bad water.'"

There were four cases of dysentery, and 103 of diarrhœa in the Octavia. Many of the cases of diarrhœa occurred along with a slight epidemic of cholera in the Michaelmas quarter of the year, when the vessel was at Madras. These will be referred to when notice is taken of that epidemic. Of the cases of dysentery, one only is said to have been of any importance. It occurred in the person of a young seaman, in whom all the acute symptoms were speedily subdued by ipecacuan in large doses, and he made a rapid recovery.

There was nothing in connection with the cases of dysentery and diarrhœa in the other vessels of the squadron of a noteworthy character, excepting that the fatal case occurred in a petty officer of the Wasp, who appears to have died from hæmorrhage from the bowels, occasioned probably by ulceration laying open some vessel.

Cholera.—There were five cases of cholera under treatment during the year, one of which proved fatal. They all occurred in the Octavia in the Michaelmas quarter of the year, when the vessel was at Madras, at which time also, as has been noted above, there were a good many cases of diarrhœa. The report of the surgeon of the ship is as follows:—

"During the latter part of the ship's stay at Madras, a slight outbreak of cholera, and choleraic diarrhœa occurred, the particulars of which are as follow:—'On the ship's arrival at Madras (on the 2nd of September), cholera was found to be as usual endemic among the dirty, squalid, and crowded native population, and previous to any leave being given to the crew, they were cautioned to avoid that quarter of the town (known as 'Black Town') in which the natives live. Nevertheless, on the 15th of the month, a well-marked case of the worst form of Asiatic cholera occurred in the person of a marine who had returned from leave four days previously, and had, I believe,

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I believe, passed the greater part of his time on shore in Black Town. He recovered.

"On the 18th, another private marine, who had likewise been on leave in Madras, was seized with similar symptoms, and died about twelve hours after admission to the sick-list. Three other cases occurred on the 27th and 30th of September, and on the 2nd of October respectively, and recovered. They were all well-marked cases of Indian cholera, and afforded, I consider, good evidence in favour of the so-called 'saline treatment' (as recommended by Dr. Stevens) which was adopted in all of them, and would, I believe, have likewise proved successful in the single case that terminated fatally, had it been carried out as strictly and perseveringly as it was in those cases that recovered.

"The absence of any consecutive fever in all the cases is remarkable, and was, I believe, also to be attributed to the saline treatment, although it is true, I believe, that the consecutive fever is never so common after cholera in India as it is in Europe.

"Concurrently with, and for a week after the appearance of the cholera cases on board, no fewer than thirty-six cases of diarrhœa occurred, some half-dozen of which assumed a decided choleraic character, being attended with rapid and extreme depression, and slight vomiting; but being early seen, they all yielded to the following treatment, viz., close confinement to bed, and the patients only being allowed to use night-stools, instead of going to 'the head' (the fatigue, and exposure to weather attending which proceeding is so calculated to aggravate all serious cases of illness on board ship), a large sinapism being applied to the epigastrium; and first, a seidlitz powder with a little brandy being given, after which had operated once, a basin of strong beef-tea well seasoned with salt and pepper; and then soda water, one bottle; and brandy, one ounce every two hours until reaction set in, and the patient expressed himself as feeling 'comfortable.' This treatment never required to be continued beyond the day of admission, and with a little careful nursing and dieting the patients were all able to return to their duty in two or three days, with only two exceptions, which were somewhat more protracted.

"While, in the diarrhœa cases which presented no specific choleraic symptoms, compound chalk mixture, and carefully regulated diet sufficed, the cure never being protracted beyond a week.

"That the origin of the disease was infection contracted on shore, is, I think, unquestionable, and the insanative condition of Madras at all times fully accounts for the disease being always more or less prevalent there; the naturally good position of the town, on the sea coast, and almost constantly exposed to the influence of the sea breezes, being completely neutralised by the overcrowded condition of the native population, and the offensive and pernicious emanations arising from the open sluices of 'Black Town.'.

"The special measures taken to arrest the spread of the disease on board were, 1st. Putting to sea with as little delay as possible on the morning of the 19th when the fatal case occurred, and cruising to and fro at the distance of some sixty or seventy miles from land, until the 22nd; then going into harbour again merely long enough to

to get stores, &c., on board, and on the morning of the 28th again putting to sea for Trincomalee; 2ndly. Isolating the attacked as completely as possible in a screened portion of the main deck; 3rdly. The liberal use of chloride of lime, and of McDougall's disinfecting powder, with immediate destruction of all tainted clothing and bedding."

Diseases of the Liver.—The ratio of cases of diseases of the the liver was somewhat below that of the previous year; but the invaliding rate was precisely the same. Twenty-four cases of disease were under treatment, and of these five were invalided.

Diseases of the Genito-Urinary Organs.—There is a very great increase in all the ratios under this head, as compared with the preceding year. One hundred and thirty-three cases of primary syphilis, twenty of secondary syphilis, and fifty-four of gonorrhœa were under treatment during the year; and of these one case of primary syphilis was invalided, and one died; and six cases of secondary syphilis were under treatment, and one died. Each case of primary syphilis was under treatment, on an average, over twenty-seven days; each case of secondary syphilis nearly fifty days; and each case of gonorrhœa between fourteen and fifteen days.

There were eight cases of primary syphilis, two of secondary syphilis, and three of gonorrhœa in the Highflyer; but very little information is furnished in connection with them. One of the cases seems to have been exceedingly tedious.

In the Lyra there were twelve cases of primary syphilis, two of secondary, and eight of gonorrhœa. The majority of these cases occurred in the Christmas quarter of the year, when the vessel was at the Seychelles Islands. The surgeon says:—

"Venereal disease again figures heavily, more than one-third of the total days' sickness arising from that complaint. Every case was contracted at Seychelles, where the disease appears to be on the increase, if we may judge from our former experience of the islands. The cases were inclined to be obstinate, and, whether mercury was given or not, secondary symptoms often presented themselves. They occurred chiefly in those who had just arrived at manhood."

There were sixty-one cases of primary syphilis, six of secondary syphilis, and eighteen of gonorrhœa in the Octavia; and of these one case of primary and one of secondary

 syphilis

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syphilis were invalided, and one case of primary syphilis had a fatal termination. In the majority of cases the disease appears to have been contracted at Bombay. The fatal case occurred in the person of a boy, aged seventeen, of a very slight frame and delicate constitution, who, on returning from Butcher's Island, where he had been under treatment for "variola, sine eruptione," and had quite recovered, was allowed to go on leave for a few hours in Bombay on the 27th of April. On the 4th of May he presented himself with phymosis and a profuse preputial discharge. The prepuce was not much swollen, but at the right of the frænum it felt very tender, and the constriction was so great that it could not be retracted. He was ordered to bed, and an acetate of lead lotion injected under the prepuce and applied round the penis. On the 6th the prepuce was laid open, and a black gangrenous sore exposed, measuring half an inch in length by a quarter of an inch in breadth. Nitric acid and charcoal poultices were applied, but the disease went on unchecked, and on the 7th the entire prepuce was removed without giving any pain to the patient, or being attended with much hæmorrhage. On the evening of the 8th, when the surgeon of the ship returned from Butcher's Island, where he had been in attendance on small-pox patients, and saw the boy for the first time, the report is: —

"The whole of the organ, then, to within half an inch of its root, was perfectly black and devoid of sensation, while a faint purplish tinge, spreading over the pubis and the anterior surface of the scrotum, showed that those parts also were beginning to be involved in the destructive process. The boy's pulse was 120, very weak and thready; the tongue brown, and inclining to dry; teeth covered with sordes; and the mind as well as the body so prostrated that nothing beyond a feeble monosyllable could be elicited from him in reply to any question.

"I had him removed to behind a screen on the main deck; the parts were well bathed and dried, and strong nitric acid was then freely applied to all the blackened tissues; but although no chloroform was given, and the acid was evidently of full strength, the patient showed no sign of sensation.

"There was still sufficient vitality left in the organ to enable the patient to pass his urine in a continuous stream, and that fact afforded a slight gleam of hope.

"Strong beef-tea with port wine and egg-flip and brandy were given in as large quantities as the poor boy could be induced to take; and, finding that no local application could prove too strong, the whole of the diseased parts were enveloped in strips of calico, steeped in Sir William Burnett's solution of chloride of zinc, undiluted. This acted beneficially in partially deodorising the parts (the odour of which had become extremely offensive), but did not seem to exert any

any influence upon the destructive process, further than perhaps rendering it a little slower than it otherwise might have been.

"The patient's strength continued steadily to decline, and on the morning of the 15th he breathed his last, quietly, and apparently painlessly; his life indeed having been prolonged during the previous three or four days only by dint of constant stimulants, with small quantities of strong soup and wine.

"Before death the whole of the scrotum had become greatly swollen and discoloured. Nevertheless, except when pricked with a lancet, as I found it required to be on the 12th, in order to relieve the tension caused by the fluid effused into the cellular tissue, it seemed to give him no pain; and, indeed, with the exception of a faint expression or movement of uneasiness, the poor boy gave no sign of suffering from the first day I saw him to the hour of his death."

The surgeon is of opinion that the rapidly fatal issue of the disease in this case was determined infinitely more by the very debilitated and cachectic state of the patient's constitution than by the virulence of the poison absorbed from the original sore; and he thinks that any treatment of the disease would have proved unavailing, as the vital powers of the patient were too exhausted to withstand the process of disintegration already begun, or to eliminate the poison already absorbed, when he first applied for advice. The fact, moreover, that all the other cases of syphilis contracted at Bombay proved to be of a very tractable nature goes far, he thinks, to confirm the belief that the sad issue of this poor boy's case was attributable chiefly to his unfavourable diathesis.

A death from secondary syphilis occurred in the naval hospital at Simon's Bay, in the person of a stoker of the Seringapatam, who had originally contracted the disease in Japan, and was in a miserably emaciated and enfeebled condition when admitted into hospital. He suffered from epilepsy also; but whether he was the subject of this disease before or after becoming affected by the syphilitic virus does not appear. The alveolar process of the superior maxillary bones, and the palate and spongy bones, were involved in disease; and before death he suffered much from dysphagia and dyspnœa. He ultimately sank, exhausted. The following report of the post-mortem examination of the body is by the staff-surgeon* of the hospital.

"Post-

* Staff-Surgeon John Stirling, M.D.

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"Post-mortem examination, twenty-four hours after death :—

	Lbs.	*oz.*
Weight of lungs - - - - -	3	13
„ „ heart - - - - -	1	8
„ „ liver and right kidney -	4	2
„ „ left kidney - - - -	0	7
„ „ spleen - - - - -	0	4½
„ „ brain - - - - -	3	8

"*Body*—much emaciated. Feet and ankles œdematous. Penis short, small, with glans exposed by division of prepuce. Front incisor of upper jaw gone, and its left neighbour loose; extensive necrosis of palate and æthmoid bones.

"*Thorax.*—Lungs much congested; right one larger and heavier than left, and adherent inferiorly to the diaphragm; its posterior border was black, soft, and glistening, and impervious to air; the rest was crepitant. Left lung crepitant throughout. Heart filled with clot, and in the left ventricle was a small fatty polypus. One of the aortic valves was rather thickened at its free margin. The mitral valve had a thickened irregular edge.

"*Abdomen.*—Liver large, fawn-coloured; portal system congested, cut with sharp waxy edges, but gave no reaction with iodine. Was attached at one spot superiorly to the diaphragm, where also the lung was adherent, and at this spot in the liver substance was a cyst filled with yellow cheese-like substance. The gall and bladder were elongated; the spleen hard and small; the colon small and much contracted, not larger than the jejunum; no marks of healed ulcers, but the coats were uniformly thickened. Left kidney much larger than the right, which was firmly attached to the liver.

"*Head.*—Skull dense and unusually heavy. Brain much congested; numerous bloody puncta and arborescent veins. Attached to the right choroid plexus was a bunch of small cysts, like hydated cysts, matted together by a gelatinous substance. The walls of the cysts were semi-transparent and tough; the contents semi-liquid. Each cyst was about the size of a small pea. Each ventricle contained about a drachm of serum."

Wounds and Injuries.—Three men were killed in action, and one man died from the effects of a mortal wound of the abdomen, sustained in action. A man died from the effects of injuries sustained by his foot getting entangled in the maintopsail halyards as the yard came down. He was dashed violently about, and his foot nearly torn off; the foot was amputated, but he died in a few hours. A man was killed by the premature explosion of a saluting cartridge. The front wall of the abdomen was destroyed, and the bowels only kept in situ by the scorched and hardened mesentery; the bladder also was ruptured; there was free deep-seated hæmorrhage, and he died in about six minutes.

Two

Two men were drowned; one by falling overboard from a boat, which was being hauled up; and the other is supposed to have jumped overboard in a fit of delirium, while convalescing from remittent fever.

The total number of deaths was thirty-nine, which is in the ratio of 21· per 1,000 of mean force, being an increase, compared with the preceding year, equal to 6· per 1,000, and altogether attributable to the epidemics in the Octavia.

Invalided.—One man was invalided for ague; four for diseases of the brain and nervous system; ten for diseases of the respiratory organs, of whom eight were phthisical; one for disease of the heart; five for diseases of the alimentary canal; five for disease of the liver; twelve for diseases of the genito-urinary organs, chiefly venereal; fourteen for rheumatism; one for gout; two for diseases of the bones and joints; three for diseases of the special senses; six for diseases of the skin and cellular tissue; eight for diseases not classed; seven for wounds and injuries of various kinds; and one for hernia; making the total number invalided eighty, which is in the ratio of 43·2 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 9·4 per 1,000.

TABLE, No. 1.

SHOWING the Number of Cases of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	424	229·1	-	-	9	4·8
Intermittent Fever	18	9·7	1	·5	—	—
Small Pox	169	91·3	-	-	6	3·2
Measles	13	7·	-	-	2	1·
Apoplexy	1	·5	-	-	3	1·6
Epilepsy	7	3·7	—	—	—	—
Paralysis	2	1·	—	—	—	—
Insanity	2	1·	1	·5	—	—
Delirium Tremens	5	2·7	-	-	1	·5
Neuralgia	17	9·1	1	·5	—	—
Vertigo	4	2·1	1	·5	—	—
Insolation	1	·5	1	·5	—	—
Inflammation of the Lungs and Pleura	18	9·7	1	·5	2	1·
Phthisis and Hæmoptysis	16	8·6	8	4·3	2	1·
Influenza and Catarrh	199	107·5	—	—	—	—
Cynanche	39	21·	1	·5	—	—
Asthma	5	2·7	—	—	—	—
Disease of the Heart, Functional and Organic	7	3·7	1	·5	1	·5
Hæmorrhoids	9	4·8	—	—	—	—
Varix	3	1·5	—	—	—	—
Disease of the Stomach and Bowels	2	1·	1	·5	1	·5
Dysentery	24	12·9	3	1·6	1	·5
Diarrhœa	223	120·5	1	·5	—	—
Cholera	5	2·7	-	-	1	·5
Constipation and Colic	45	24·3	—	—	—	—
Disease of the Liver	18	9·7	5	2·7	—	—
Jaundice	6	3·2	—	—	—	—

TABLE, No. 1.—SHOWING the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Syphilis, Primary	133	71·8	1	·5	1	·5
Syphilis, Secondary	20	10·8	6	3·2	1	·5
Gonorrhœa	54	29·1	—	—	—	—
Orchitis	39	21·	1	·5	—	—
Stricture	14	7·5	4	2·1	—	—
Incontinence of Urine, &c.	1	·5	—	—	—	—
Rheumatism	159	85·9	14	7·5	—	—
Gout	2	1·	1	·5	—	—
Disease of the Bones and Joints	20	10·8	2	1·	—	—
Inflammation of the Eyes	17	9·1	—	—	—	—
Amaurosis and Cataract	7	3·7	2	1·	—	—
Otitis and Deafness	12	6·4	1	·5	—	—
Erysipelas	5	2·7	—	—	—	—
Scrofula	6	3·2	1	·5	—	—
Bubo (*Symp.*)	52	28·1	—	—	—	—
Phlegmon and Abscess	533	288·1	2	1·	—	—
Ulcer	290	156·7	3	1·6	—	—
Psora	3	1·6	—	—	—	—
Eruptions, &c.	24	12·9	—	—	—	—
Dyspepsia and Debility	215	116·2	6	3·2	—	—
Scurvy	1	·5	—	—	—	—
Dropsy	7	3·7	—	—	—	—
Worms	6	3·2	2	1·	—	—
Headache	27	14·5	—	—	—	—
Wounds and Injuries	484	261·6	7	3·7	6	3·2
Burns and Scalds	25	13·5	—	—	—	—
Hernia	5	2·7	1	·5	—	—
Drowned	-	-	-	-	2	1·
TOTAL	3,443	1861·	80	43·2	39	21·

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE, and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	3,205	891	4,096	11·2	6·
Intermittent Fever	174	213	387	1·	·5
Small Pox	4,572	110	4,682	12·8	6·9
Measles	73	-	73	·2	·1
Scarlatina	-	8	8	—	—
Apoplexy	1	-	1	—	—
Epilepsy	54	-	54	·1	—
Paralysis	50	-	50	·1	—
Insanity	17	181	198	·5	·2
Delirium Tremens	23	-	23	—	—
Neuralgia	179	-	179	·4	·2
Vertigo	15	190	205	·5	·2
Insolation	12	62	74	·2	·1
Inflammation of the Lungs and Pleura	280	246	526	1·4	·7
Phthisis and Hæmoptysis	226	619	845	2·3	1·2
Influenza and Catarrh	966	15	981	2·6	1·4
Cynanche	338	186	524	1·4	·7
Asthma	21	-	21	—	—
Disease of the Heart, Functional and Organic	126	115	241	·6	·3
Hæmorrhoids	86	-	86	·2	·1
Varix	109	-	109	·2	·1
Disease of the Stomach and Bowels	63	-	63	·1	—
Dysentery	332	324	656	1·7	·9
Diarrhœa	1,453	118	1,571	4·3	2·3
Cholera	59	-	59	·1	—
Constipation and Colic	179	43	222	·6	·3
Disease of the Liver	461	402	863	2·3	1·2
Jaundice	41	24	65	·1	—

Table, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	18	- -	18	—	—
Syphilis, Primary	2,693	939	3,632	9·9	5·3
Syphilis, Secondary	585	414	999	2·7	1·4
Gonorrhœa	762	36	798	2·1	1·1
Orchitis	409	156	565	1·5	·8
Stricture	210	96	306	·8	·4
Incontinence of Urine, &c.	30	- -	30	—	—
Rheumatism	1,753	1,232	2,985	8·1	4·3
Gout	2	57	59	·1	—
Disease of the Bones and Joints	404	99	503	1·3	·7
Inflammation of the Eyes	176	99	275	·7	·3
Amaurosis and Cataract	31	106	137	·3	·1
Otitis and Deafness	65	219	284	·7	·3
Erysipelas	86	10	96	·2	·1
Scrofula	97	148	245	·6	·3
Bubo (*Symp.*)	933	972	1,905	5·2	2·8
Phlegmon and Abscess	4,043	327	4,370	11·9	6·4
Ulcer	4,945	1,312	6,257	17·1	9·2
Psora	22	- -	22	—	—
Eruptions, &c.	153	4	157	·4	·2
Dyspepsia and Debility	1,264	370	1,634	4·4	2·3
Scurvy	41	- -	41	·1	—
Dropsy	45	27	72	·1	—
Worms	37	- -	37	·1	—
Headache	122	36	158	·4	·2
Wounds and Injuries	4,587	911	5,498	15·	8·1
Burns and Scalds	272	74	346	·9	·4
Hernia	51	- -	51	·1	—
TOTAL	36,951	11,391	48,342	132·4	71·5

TABLE, No. 3.

SHOWING the Number INVALIDED from each Ship employed on the CAPE of GOOD HOPE and EAST INDIA STATION.

CAUSE of INVALIDING.	Highflyer.	Lyra.	Octavia.	Penguin.	Peterel.	Rapid.	Seringapatam.	Valorous.	Vigilant.	Wasp.	TOTAL.
Intermittent Fever	–	–	–	–	–	1	–	–	–	–	1
Insolation	–	–	1	–	–	–	–	–	–	–	1
Insanity	–	–	–	–	–	–	–	1	–	–	1
Vertigo	–	–	–	–	–	–	–	1	–	–	1
Neuralgia	–	–	1	–	–	–	–	–	–	–	1
Inflammation of the Lungs and Pleura	1	–	–	–	–	–	–	–	–	–	1
Phthisis and Hæmoptysis	–	–	4	–	–	1	–	1	1	1	8
Cynanche	–	–	–	–	–	–	1	–	–	–	1
Disease of the Heart, Functional and Organic	–	–	1	–	–	–	–	–	–	–	1
Inflammation of the Stomach and Bowels	–	1	–	–	–	–	–	–	–	–	1
Dysentery	1	–	1	–	–	–	–	–	–	1	3
Diarrhœa	1	–	–	–	–	–	–	–	–	–	1
Disease of the Liver	–	–	1	1	–	–	–	–	–	3	5
Syphilis, Primary	–	–	1	–	–	–	–	–	–	–	1
Syphilis, Secondary	–	–	1	1	–	1	1	–	2	–	6
Orchitis	1	–	–	–	–	–	–	–	–	–	1
Stricture	1	–	3	–	–	–	–	–	–	–	4
Rheumatism	4	–	5	1	–	–	2	–	1	1	14
Gout	–	–	–	–	–	–	–	1	–	–	1
Diseases of the Bones and Joints	–	–	–	1	1	–	–	–	–	–	2
Amaurosis and Cataract	1	–	–	–	–	–	1	–	–	–	2
Otitis and Deafness	–	–	–	–	–	1	–	–	–	–	1
Scrofula	–	–	1	–	–	–	–	–	–	–	1
Abscess	1	–	–	1	–	–	–	–	–	–	2
Ulcer	–	–	2	–	–	–	–	–	–	1	3
Dyspepsia and Debility	–	–	1	1	–	–	1	1	2	–	6
Worms	2	–	–	–	–	–	–	–	–	–	2
Wounds	–	–	2	–	–	–	2	3	–	–	7
Hernia	–	–	–	–	–	–	–	1	–	–	1
TOTAL	13	1	25	6	1	4	8	9	6	7	80

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship employed on the CAPE of GOOD HOPE and EAST INDIA STATION.

CAUSE OF DEATH.	Highflyer.	Octavia.	Pantaloon.	Seringapatam.	Valorous.	Vigilant.	Wasp.	TOTAL.
Continued and Remittent Fever	–	8	–	–	–	–	1	9
Small Pox	–	6	–	–	–	–	–	6
Measles	–	2	–	–	–	–	–	2
Apoplexy	2	–	–	–	–	–	1	3
Delirium Tremens	–	1	–	–	–	–	–	1
Inflammation of the Lungs and Pleura	–	1	–	1	–	–	–	2
Phthisis	–	1	1	–	–	–	–	2
Disease of the Heart	1	–	–	–	–	–	–	1
Enteritis	–	–	–	–	–	1	–	1
Dysentery	–	–	–	–	–	–	1	1
Cholera	–	1	–	–	–	–	–	1
Syphilis, Primary	–	1	–	–	–	–	–	1
Syphilis, Secondary	–	–	–	1	–	–	–	1
Wounds and Injuries	4	1	–	–	1	–	–	6
Drowned	–	–	1	–	–	–	1	2
TOTAL	7	22	2	2	1	1	4	39

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Cases; the Total Number of Days' Sickness on Board; the Average Number of Men Sick Daily, in each Ship; and the Number discharged to Hospital.

C. Commissioned. D. Returns Defective.

Rate, &c.	NAMES of SHIPS.		Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.	Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily.	Ratio per 1,000 of Average Force of each Ship for Twelve Months.	Number Discharged to Hospital.
Fourth Rate -	Octavia - -		Portsmouth	14 June 1865	35	3,161	S. 500	Year - -	550	550	1,561	17,147	46·9	85·2	100
Sixth Rate -	Highflyer -	D.	Portsmouth	15 Dec. 1864	21	1,161	S. 250	Year - -	265	220	267	3,644	9·9	45·	7
	Valorous - -		Devonport -	15 April 1863	16	1,257	P. 400	Year - -	230	230	308	3,118	8·5	36·9	16
	Wasp - - -		Portsmouth	16 Nov. 1863	13	974	S. 100	Year - -	175	175	274	3,014	8·2	46·8	13
Sloop - -	Lyra - - -		Portsmouth	22 Dec. 1863	7	488	S. 60	Year - -	95	95	179	1,906	5·2	54·7	2
	Pantaloon - -		Bombay -	15 Jan. 1863	11	574	S. 150	Year - -	135	135	193	1,915	5·2	38·5	-
	Peterel -	C.	Devonport -	2 June 1866	3	669	S. 150	1 Oct. to 31 Dec.	100	25	55	529	1·4	56·	1
	Rapid - - -		Woolwich -	12 June 1862	11	672	S. 150	Year - -	125	125	149	1,188	3·2	25·6	13
Gun Vessel -	Penguin - -		East Indies	14 June 1865	5	431	S. 80	Year - -	70	70	146	1,797	4·9	70·	5
	Vigilant - -		Sheerness -	13 Feb. 1863	4	680	S. 200	Year - -	95	95	157	1,506	4·1	43·1	2
Receiving Ship	Seringapatam -		Cape of Good Hope.	- - -	-	1,152	-	Year - -	130	130	154	1,251	3·4	26·1	23

TABLE, No. 6.

SHOWING the Number of CASES of all DISEASES and INJURIES in each Ship employed on the CAPE OF GOOD HOPE and EAST INDIA STATION.

DISEASE OR INJURY.	Highflyer.	Lyra.	Octavia.	Pantaloon.	Penguin.	Peterel.	Rapid.	Seringapatam.	Valorous.	Vigilant.	Wasp.	TOTAL.
Continued and Remittent Fever	23	13	339	4	8	–	9	–	–	7	21	424
Intermittent Fever	4	–	3	1	–	–	2	–	–	3	5	18
Small Pox	4	–	165	–	–	–	–	–	–	–	–	169
Measles	–	–	11	2	–	–	–	–	–	–	–	13
Apoplexy	1	–	–	–	–	–	–	–	–	–	–	1
Epilepsy	3	2	1	–	–	–	–	–	1	–	–	7
Paralysis	2	–	–	–	–	–	–	–	–	–	–	2
Insanity	–	–	–	–	–	–	–	–	2	–	–	2
Delirium Tremens	2	2	1	–	–	–	–	–	–	–	–	5
Neuralgia	–	–	9	1	–	–	–	–	6	–	1	17
Vertigo	–	–	–	–	–	–	–	–	3	–	1	4
Insolation	–	–	1	–	–	–	–	–	–	–	–	1
Inflammation of the Lungs and Pleura	3	1	4	1	–	1	4	1	2	–	1	18
Phthisis and Hæmoptysis	–	–	6	–	–	–	–	3	–	1	6	16
Cynanche	2	–	15	–	–	2	4	7	5	2	2	39
Influenza and Catarrh	19	16	41	11	5	2	12	19	20	39	15	199
Asthma	1	–	4	–	–	–	–	–	–	–	–	5
Disease of the Heart, Functional and Organic	2	–	3	–	–	–	–	–	2	–	–	7
Hæmorrhoids	2	1	3	–	–	–	3	–	–	–	–	9
Varix	–	–	2	1	–	–	–	–	–	–	–	3
Inflammation of the Stomach and Bowels	–	1	–	a 1	–	–	–	–	–	–	–	2
Cholera	–	–	5	–	–	–	–	–	–	–	–	5
Dysentery	9	1	4	–	–	–	–	–	2	2	6	24
Diarrhœa	19	20	103	15	15	1	2	5	8	21	14	223
Constipation and Colic	4	–	21	4	2	–	4	1	3	–	6	45
Inflammation of the Liver	–	8	3	–	2	–	–	1	–	–	4	18
Jaundice	–	1	3	–	2	–	–	–	–	–	–	6
Syphilis, Primary	8	12	61	5	10	1	6	2	17	7	4	133
Do. Secondary	–	2	6	–	2	–	1	7	–	1	1	20
Gonorrhœa	2	8	18	6	6	2	2	4	2	–	4	54
Orchitis	3	3	18	3	–	–	1	3	6	–	2	39
Stricture of the Urethra	1	–	8	–	–	1	–	2	1	–	1	14
Incontinence of Urine, &c.	–	–	–	–	–	–	–	–	1	–	–	1
Rheumatism	5	8	58	9	1	6	8	11	29	12	12	159
Gout	–	–	–	–	–	–	–	–	2	–	–	2
Disease of the Bones and Joints	–	1	10	–	1	1	1	3	–	1	2	20
Inflammation of the Eyes	3	1	7	1	–	2	–	–	1	–	2	17
Amaurosis and Cataract	1	–	b 3	b 1	–	–	–	2	–	–	–	7
Otitis and Deafness	–	1	8	–	–	–	1	–	–	–	2	12
Erysipelas	–	–	4	–	–	–	–	–	1	–	–	5
Scrofula	–	–	6	–	–	–	–	–	–	–	–	6
Bubo (*Symp.*)	4	3	24	1	3	1	2	2	4	–	8	52
Phlegmon and Abscess	46	25	191	45	35	13	45	18	62	22	31	533
Ulcer	30	16	128	19	16	2	7	6	18	7	41	290
Psora	–	–	–	–	–	1	–	2	–	–	–	3
Eruptions, &c.	2	4	7	–	3	–	1	1	3	1	2	24
Dyspepsia and Debility	15	3	109	8	15	–	–	15	10	9	31	215
Scurvy	–	1	–	–	–	–	–	–	–	–	–	1
Dropsy	4	–	–	–	3	–	–	–	–	–	–	7
Worms	–	–	c 2	–	c 1	–	–	c 1	c 2	–	–	6
Headache, &c.	1	1	1	15	3	2	–	–	2	2	–	27
Wounds and Injuries	39	22	140	36	13	17	33	37	81	20	46	484
Burns and Scalds	3	2	5	3	–	–	1	1	9	–	1	25
Hernia	–	–	–	–	–	–	–	–	3	–	2	5
TOTAL	267	179	1,561	193	146	55	149	154	308	157	274	3,443

a Hæmatemesis. b Nyctalopia. c Tænia.

CHINA STATION.

China Station.

THE squadron on the China Station in 1866, comprised twenty-six vessels, viz. one vessel of the second rate; one of the fifth rate; four of the sixth rate; five sloops; seven gun-vessels; two steam vessels; one gun-boat; two surveying vessels; one troop ship; one store ship; and one receiving ship permanently stationed at Hong Kong. Besides these there were thirteen or fourteen small gun-boats, in which, in consequence of want of accommodation, there were no medical officers, and the crews were attended either by the medical officers of the vessels of war near them, or by civil practitioners from the shore. From these small vessels consequently no reliable returns of cases could be obtained. The returns from eighteen of the vessels were for the whole year, and from the remainder for periods varying from one month to nine. The total force corrected for time was 4,070, but in estimating the ratio of cases entered on the sick-list a deduction has been made to the extent of the crews of the gun-boats in which there were no medical officers, and the force for that purpose is therefore taken as 3,550. The total force, however, is taken for the ratios of deaths and invaliding.

The total number of cases entered on the sick-list was 5,221, being in the ratio of 1470·7 per 1,000 of mean force, which is a decrease, compared with the preceding year, equal to 221·6 per 1,000.

The daily loss of service from febrile diseases, including, the exanthemata, was in the ratio of 4·3 per 1,000 of mean force; from diseases of the brain and nervous system ·3; of the organs of respiration 3·8; of the heart and bloodvessels ·8; of the alimentary canal 5·3; of the liver ·7; of the genito-urinary organs, almost altogether venereal, 15·2; from rheumatism 5·2; from diseases of the bones and joints ·3; of the special senses ·5; of the skin and cellular tissue 11·9; from diseases not classed 2·3; and from wounds and injuries of various kinds, and hernia 7·9. The total number of men daily

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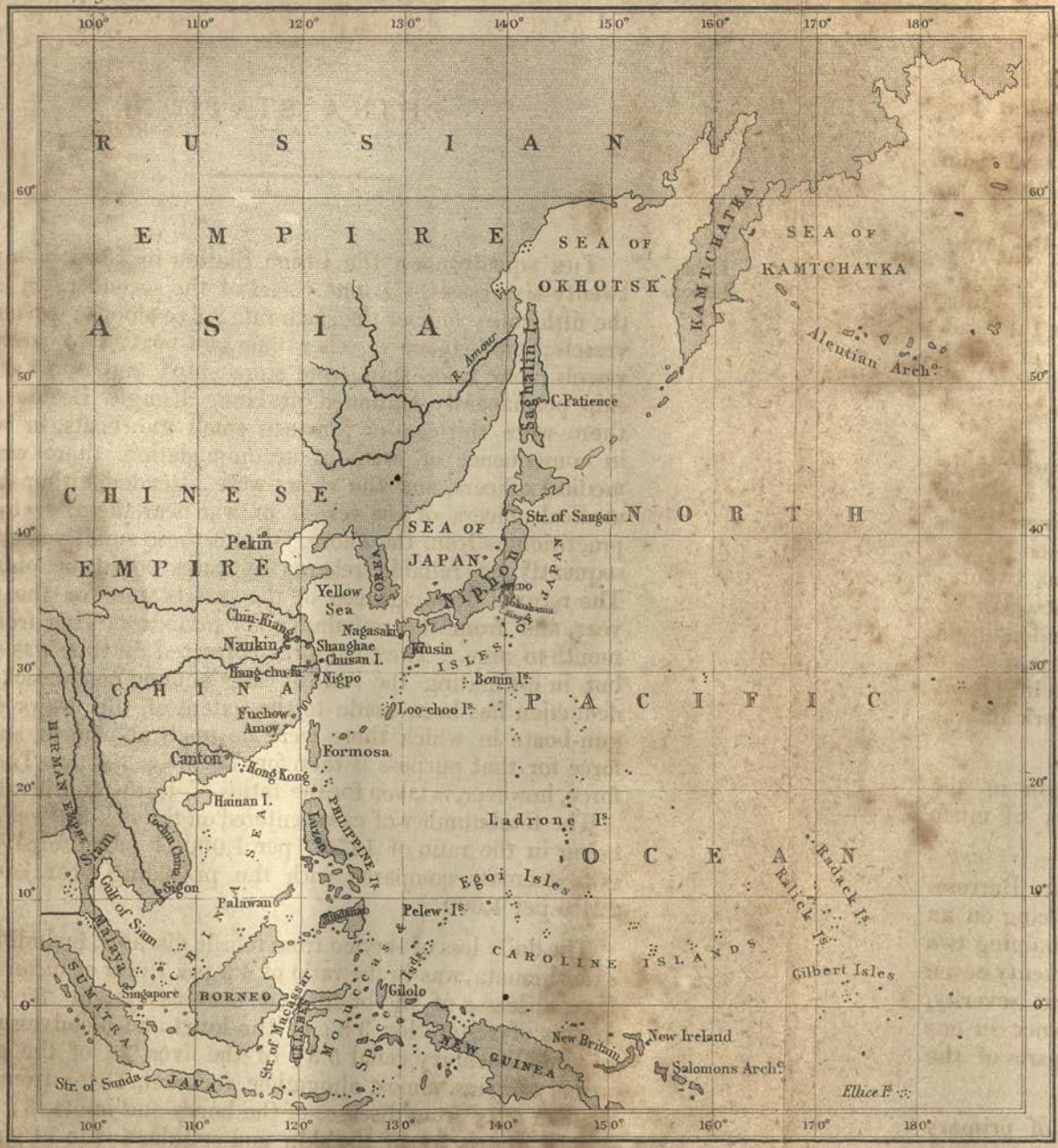
CHINA STATION.



daily ineffective was 218·6. which is in the ratio of 61·5 per 1,000 of mean force, being a reduction, compared with the preceding year, equal to 18·9 per 1,000. China Station.

Fevers.—There were 409 cases of fever of a continued and remittent type under treatment during the year; 133 of intermittent fever; and twenty-one of small-pox; and of these eight cases of primary fever and two of ague were invalided; and nine cases of primary fever and one of small-pox had a fatal termination. The duration of each case of primary fever on board ship and in hospital was between ten and eleven days; of each case of ague between seven and eight days; and of each case of small-pox about fifteen days. In Table II. twenty-four days' hospital sickness appears under the head of measles. These were the result of a case sent from one of the gun-boats in which there was no medical officer, and from which, consequently, no cases had been received.

Continued and Remittent Fever.—There were twenty-six cases of primary fever in the Adventure, one of which is classed as continued, six as remittent, and nineteen as febricula. The only case which appears to have been of any duration was that classed as continued, which was twenty-five days under treatment. It does not appear, however, to have been otherwise of much importance, as no special mention is made of it. The cases of remittent fever appear to have been of a very mild type, their average duration being about five days. The average duration of each case of febricula was six days.

There were only two cases of primary fever in the Algerine, and they do not appear to have been of much importance.

There were sixteen cases of primary fever in the Barrosa. Fourteen of these were ephemeral, each case being on an average six days under treatment, but of the remaining two cases, which are classed as continued, each was seventy-seven days on the sick-list. Both cases were of great severity, and followed by great prostration. Convalescence in one was retarded by abscesses occurring on various parts of the body.

In the Basilisk there were thirty-four cases of primary fever, two of which proved fatal. One of these occurred, while the vessel was at Shanghai, in the person of a seaman

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who just before his illness had been seen drinking the river water which he drew from the head pumps. He was placed on the sick-list on the evening of the 7th of August, complaining of diarrhœa, which was easily checked. On the following morning, however, he was very feverish, and complained of headache, giddiness, pain in the back, and thirst. The skin was hot, the pulse rapid, and the tongue foul. On the 9th of August the report of the surgeon* of the vessel is :—

"He felt much better last night, but at 3 this morning he was seized with strong convulsions, which lasted twenty-five minutes. The pupils were at first much dilated, but afterwards they were contracted. The face was flushed; the pulse very rapid; the teeth clenched. He slowly recovered partial consciousness after the application of a sinapism to the nape of the neck, but even then he answered questions only when loudly spoken to. He is now (9 a.m.) very drowsy, and complains of headache; pulse natural; bowels freely moved by medicine. Apply ice to head, and watch symptoms.

"August 10th.—Passed a very restless night; delirious and raving the whole time. The bowels were freely moved, and the alvine discharges were mixed with streaks of pure blood. During the night the pupils were contracted; skin very hot; pulse 120, full. This morning he is much quieter; pulse 112, softer; he keeps picking at the bedclothes, and occasionally throwing his arms about; the head kept cool with constant application of ice and a stream of iced water. As there was a tendency to coma the Lin. cantharidis was painted over the nape of the neck, which roused him a little. He cannot be got to swallow anything. His mouth is kept moist with wine-and-water, &c.

"August 11th.—He continued all night in a state of insensibility, but tolerably quiet, and occasionally throwing his arms about and picking the bedclothes. At 5 p.m. he improved considerably, opening his eyes, and becoming partly conscious; pulse slower and stronger."

In this condition he was sent to the "Acorn" hospital ship. On admission there, one pupil was contracted to the size of a pin's point, the other was widely dilated. There were muscular twitchings and convulsive spasms; he was quite insensible. No permanent benefit was derived from the treatment to which he was subjected. For a little time he seemed relieved after the application of leeches to the temples, but stertorous breathing soon set in, and he died on the evening of the day of his admission to the Acorn. No examination of the body appears to have been made.

The

* Acting-Surgeon George Monteath, M.D.

The other fatal case occurred in the person of a non-commissioned officer of Marines, and was of the enteric type. He was placed on the sick-list on the 28th of October, suffering from severe rheumatic pains in the left arm and shoulder, rendering the limb almost powerless. Otherwise he felt quite well. He was ordered colchicum, and on the following day was much better. On the 30th of October the rheumatism was quite gone, but he had griping pains, for which he was ordered castor-oil, with following relief. On the 31st the pains in the bowels returned and the abdomen became tympanitic; he looked very weak and much prostrated. From this state he gradually became worse; the tongue became red and moist; there was diarrhœa of the characteristic pea-soup colour; pain in the region of the caput cæcum; epistaxis; hiccup; laboured breathing, and occasionally low muttering delirium; cold clammy perspiration, and finally death on the afternoon of the 10th of November, the thirteenth day of his being on the sick-list. As in the former instance, no examination of the body was made after death.

There were forty-six cases of primary fever in the Coquette, one of which proved fatal. This is said to have been a case of remittent fever contracted at Batavia. It occurred in the person of a seaman, who died in the Civil Hospital at Singapore, on the seventh day of the fever. Vomiting was a troublesome symptom, and there were many worms in the vomited matter. Of the remaining cases, forty-one occurred in the Midsummer quarter of the year, when the vessel was at Singapore. No information whatever is given in connection with them.

There were nine cases of primary fever in the Cormorant, eight of which are classed as remittent and one as ephemeral. The duration of each case of remittent fever was on an average thirteen days. Seven of them occurred in the Christmas quarter of the year, when the vessel was at Amoy and Formosa. Six of these made their appearance in the early part of November, and were characterised at first by high fever, intense headache, vomiting, and general irritability of the gastro-intestinal mucous membrane. Quinine in the latter stage was given to all with the best effect, even when the tongue was thickly coated. One man had a relapse, which he attributed to getting wet in his hammock.

In the Hesper there were twenty-two cases of primary fever. They are all classed as febricula, and little or no information is given in connection with them.

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The cases of primary fever in the Icarus, Insolent, Leopard, and Manilla, were of little importance, and do not call for any comments.

There were thirty-four cases of primary fever in the Osprey, of which twenty-seven are classed as febricula, three as remittent, and four as continued. Two cases of continued fever, and two of remittent, were discharged to hospital. Of the cases of febricula each was, on an average, between three and four days under treatment.

In the Pelorus there were five cases of primary fever, one of which proved fatal. This occurred in the person of a young officer of a delicate and scrofulous habit of body, who, on presenting himself with general febrile symptoms, attributed them to bathing overboard in the evening. The symptoms at first were rather those of ague than of remittent fever, but as they assumed a somewhat severe character, and the ship was going to sea, he was sent on the 24th of June to the sick quarters at Yokohama. There the disease assumed a low type, and many of the characters of enteric fever. It was accompanied with congestion of the lungs and a good deal of diarrhœa, much nervous depression, stupor, and drowsiness. During the month of July, however, his condition became more hopeful, and during the last week of that month he had recovered so far as to be able to sit up, complaining only of debility and slight diarrhœa. He was allowed to go out in a chair, to visit some friends who had been very kind to him during his illness. "In the first week of August," the surgeon* of the sick quarters writes:—

"He had a return of the fever with renewed diarrhœa, which continued, sometimes violently, sometimes moderately, until the 24th, when he died. On the 18th of August the cervical glands became inflamed, and on the 22nd a small opening was made on either side, allowing the escape of five or six ounces of pus. His treatment during the whole of the attack consisted of careful stimulation, with nutritious diet; turpentine epithems from time to time to relieve the abdominal symptoms, and various astringents to check the diarrhœa. The post-mortem examination of the body, however, showed a state of things against which it was hopeless to contend. The whole of the mucous surface of the intestinal canal was more or less ulcerated, perforation having taken place at two points in the colon, near the cæcum. The greater part of the length of the ileum and colon was so ulcerated, soft, and disorganised, that the finger

* Surgeon John Dunwoodie.

finger could be pushed through all the coats with very little difficulty. The liver, and all the other organs of the body were perfectly healthy. This officer no doubt contracted the disease at Yokohama, and it came on most slowly and insidiously. His own statement was that he had felt unwell for about two weeks, and when sent here on the 24th of June it was supposed that he was suffering from a feverish cold, caused by a chill after bathing. This fact is merely mentioned as a proof of the insidious nature of the disease, and of how gradually all the fatal symptoms established themselves."

The other cases of primary fever in the Pelorus appear to have been of a somewhat severe character, judging by the length of time they remained under treatment, which was on an average between eighteen and nineteen days.

There were fifty-five cases of primary fever in the Perseus, of which ten are classed as continued, and forty-five as febricula. Three of the cases of continued fever occurred early in the month of January, and the ship having been paid off at the time in order that she might be re-commissioned, these men were at once discharged to hospital. Of the cases of febricula, twenty-nine occurred during the Michaelmas quarter of the year, when the disease prevailed on board in an epidemic form, and was associated with diarrhœa in such a way as to make it somewhat doubtful under which heading the cases should be entered. With reference to this epidemic the surgeon* says:—

"On the 1st of July, while the ship was at sea, a sudden outbreak of febricula and diarrhœa occurred, and in the space of a very few days a large part of the ship's company had been attacked, although only a small part of those were so severely affected as to be unfit for duty. The two diseases merged into each other, so that it was often difficult to decide whether any given case was one of diarrhœa with fever, or fever with diarrhœa. Others again were cases of one without the other disease. They have all been classified according to the symptom which was most prominent. The probable cause of this large amount of sickness is doubtful; the following circumstances may, however, afford some explanation of it. A very young ship's company, newly arrived in China from England, after lying idly in Amoy harbour for three months, are sent to sea, and immediately, and for the first time, encounter the south-west monsoon, which being accompanied with strong gales and wet, muggy weather, prevented the ship being sufficiently ventilated. To this must be added a considerable rise of temperature, and the change from harbour diet to salt provisions. Most of the cases of simple

* Surgeon A. B. Messer, M.D.

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simple febricula, or simple diarrhœa, recovered easily and rapidly, but many of those in which the two diseases were at first combined lingered long under treatment for intractable diarrhœa. A few of the latter cases assumed the form of dysenteric diarrhœa, while two ultimately terminated in confirmed chronic dysentery, and were sent to hospital. Quinine was used to a great extent in the treatment of most of the cases, and I think with a considerable amount of benefit."

The assistant surgeon* of the ship, remarking on the same subject, says:—

"The following Table will show the number of cases of each disease; but it has been exceedingly difficult to classify the cases, the diarrhœa and febrile symptoms being so much confused with one another, and bearing in different cases such varying proportions to one another, that it has been almost impossible to say whether they ought to be classed as diarrhœa accompanied with fever, or fever accompanied with diarrhœa:—

1st July to 31st of July 1866.	First Attack.	Second Attack.	Third Attack.
Cases in which the diarrhœa was comparatively unimportant	17	14	2
Cases in which the diarrhœa was the predominant symptom	47	14	2
Cases in which the diarrhœa and fever were about equal	24	4	2

Total number of men attacked	86
" " of second attacks	22
" " of third attacks	4
Total number of cases	112
Of which appear on sick-list	36
" " treated while at duty	76

Of the seven cases of continued fever that occurred subsequent to the vessel's being re-commissioned, the surgeon says:—

"Seven cases of continued fever are returned, with an average of 15·2 days' sickness to each case. Five cases only actually occurred, the other two being owing to a re-entry on the list of two cases,

* Assistant Surgeon John Craw, M.D.

cases, for the purpose of their being removed from the civil hospital at Amoy to the Melville at Hong Kong. Another case was also sent to hospital. All these three cases were ultimately invalided from hospital. The two remaining cases were treated on board. One case presented some peculiarities. It began as a simple case of ephemeral fever, and when nearly recovered a sudden relapse set in, accompanied with urgent cerebral symptoms. There were no distinct remissions, nor any eruption; but marked constipation. Another case resembled the preceding in the sudden accession of head symptoms when convalescence had been established. It differed, however, in being accompanied with diarrhœa, and in being followed by attacks of hysteria, almost resembling epilepsy. One case was very mild, and should properly have been classed with the febriculæ. One of the cases which was treated on board was attended with a slight attack of hepatitis on the seventh day of the fever; his recovery was delayed by an attack of rheumatism in the right elbow. The cases were distributed between the second and third quarters of the year, and were, with one exception, contracted at Amoy. The treatment consisted in refrigerant drinks and applications while the acute symptoms lasted, with quinine and a free use of stimulants during convalescence."

With respect to the symptoms which characterised the cases of febricula, he says :—

"The disease was characterised by constant headache; wandering muscular pains, generally in the back; a feeling of extreme lassitude and weakness; occasional nausea; invariable loss of appetite, and frequent irritability of stomach. The tongue was almost always coated with a white cream in the centre, through which prominent red papillæ projected, the tip and edges being generally red, and often notched or indented by the teeth. Sometimes the tongue became yellow and rather rough and dry, when vomiting and pain about the liver and epigastrium were generally also present. The acute symptoms commonly lasted from four to six days, leaving the patients weak and nervous; they, however, generally regained their strength and appetite rapidly. The diarrhœa which accompanied the cases in July was frequently very obstinate and severe, resisting most of the vegetable and mineral astringents. Solid opium and morphine were found generally the most efficacious, either alone or combined with quina. When any of the cases of febricula were longer on the sick-list than ten or twelve days, it was almost invariably owing to chronic diarrhœa persisting after all the fever had left. In one or two only of the severer cases there was a slight tendency to ill-marked remissions."

There were twenty-nine cases of primary fever in the Princess Charlotte, the receiving ship permanently stationed at Hong Kong. Twenty-four of them are classed as remittent, three as continued, and two as ephemeral. They all partook, more or less, of the latter character, although the

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different stages of the periodic fever were commonly very well marked. The average duration of each case was about six days.

There were fifteen cases of primary fever in the Princess Royal. They appear to have been of considerable severity, and in three cases had a fatal termination. One of these occurred in the person of a seaman who presented himself on the 26th of November complaining of severe pain across the loins and chest, which he attributed to a fall he had had from one of the lower deck ports into the jolly boat. He stated, however, that he had been unwell for two or three days before the fall. Cupping-glasses were applied to the loins, and blood drawn to the extent of four or five ounces. On the morning of the 27th the report by the surgeon* of the ship was as follows :—

"Had a restless night; again said that he had not been well for several days before his fall; that at times he had felt cold, which was soon followed by pain in the back and limbs, but not sufficient to prevent him doing his duty. These were succeeded by headache, hot skin, and more rapid respiration than usual, when exerting himself. His countenance seems sunken and dusky, the conjunctivæ being congested. The respirations this morning are very rapid (thirty-six). Action of the heart weak; pulse compressible (110); feet cold. There are very dark petechiæ over the body and legs. The tongue is moist and dark; bowels confined; abdomen soft."

On the following day, the symptoms becoming even more aggravated, he was discharged to the sick quarters at Yokohama, where the following report was made :—

"When this man was first seen here at 12 (noon) he appeared to be in a dying condition. He was sensible, and answered questions readily, but the countenance was peculiarly anxious, and the conjunctivæ of the right eye was injected with blood. The tongue was white at the edges, with a yellow dry fur in the centre; the pulse at the wrist was almost imperceptible; the breathing hurried and oppressed; constant sickness and vomiting, the matters ejected consisting apparently of mucus and blood; skin somewhat colder than natural, and the whole body covered with purpuric spots; there were no sordes about the teeth or lips, and no tremor present; abdomen distended and tympanitic; respiratory murmur accompanied by large crepitation. He complained of feeling very hungry, and of not having been able to eat anything for four days; of much pain in the lumbar region, and difficulty of breathing. Some thin sanguineous oozing from the cuts of cupping-glasses was found, and a compress

* Surgeon F. G. Toms.

compress and bandage were applied to arrest it. He then had an ounce of brandy with milk, which he immediately vomited. Warmth was applied to the feet, an epithem to the chest, and beef-tea administered, but he died at 1.45 p.m., an hour and three quarters after admission.

"Post-mortem examination twenty hours after death.

"The body presented an immensely bloated and swollen appearance which, on examination, was found to be produced by emphysema. The neck, so great was the swelling, was nearly obliterated, and the scrotum was as large as an ordinary cranium. The anterior surface and sides of the body were covered with small purpurous spots like ecchymoses, and the depending parts were entirely of a dark purple colour. On cutting through the skin over the sternum, the cellular tissue was found to be about an inch and a half thick, and emitted a large quantity of gas with a wind blowing sound. It was of a deep red colour, as if it had been bruized before death. On continuing the incision along the abdomen to the pelvis the same state of matters was found to exist though in a less degree. On opening the chest and abdomen a rush of gas proceeded from both. The viscera of the chest were healthy and normal, the lungs being, perhaps, more voluminous than usual. The pleura over the walls of the chest was bulged out by gas all over its surface into small bullæ, particularly opposite the intercostal spaces. The cellular tissue about the roots of the lungs was in a similar state to that over the sternum; emphysematous and of a dark red colour. There was about half a pint of fluid in the thoracic cavity, which had all the appearance of blood deprived of its fibrine. The liver was more than twice its normal size, but the increase seemed to be caused principally by the presence of air in its areolar stroma. The spleen was much enlarged, but without any emphysematous appearance. The kidneys were normal, and so were the intestines, excepting that their colour was much darker than usual, giving the appearance of decomposition, although the body had only been kept twenty hours, and the thermometer had been at 30° a greater part of the time. There were about two pints of fluid in the abdomen similar to that found in the chest, and the cellular tissue was in a similar condition; emphysematous and blood-coloured. Nothing abnormal could be detected about the spine or ribs, but as he had complained of falling on his loins, a portion of spine about a foot long was removed, extending from the sacrum to the fifth dorsal vertebra, and carefully examined. Nothing abnormal was found excepting that the bony substance of the vertebra, like all the other depending parts of the body, was loaded with black fluid blood. The mucous membrane of the stomach and bowels was sprinkled all over its surface with purpurous spots similar to those on the skin, varying in size from the one-sixteenth to the half of an inch in diameter. The stomach was quite empty; the colon loaded with fæces."

Another fatal case in connection with this vessel occurred in the person of a cook's mate, a negro; the fever was of the enteric type. The third fatal case occurred in the person of a marine, who had been left at Yokohama sick quarters to do

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duty as nurse. He contracted the fever there, which also proved to be of the enteric type.

There were twenty-two cases of primary fever in the Rattler, six of which are classed as continued, six as remittent, and ten as febricula. With reference to some of these cases the acting surgeon* remarks:—

"Two boats' crews escorted His Excellency the Governor of Labuan up to the British consulate, ten miles up the Bruni River. Here the men remained two nights sleeping in the verandah of the consulate, situated a quarter of a mile from the town. I accompanied the party, and administered quinine and sulphuric acid in four grain doses morning and evening, in an extra ration of rum. In the Sarawak also boats were detached and proceeded with a party of officers up to Kuching, where they remained three days. Quinine was also administered on that occasion. Both rivers bear an evil reputation, but though it appears that fevers are prone to attack Europeans remaining for any length of time in these localities, and also that the crew of the Serpent is known to have suffered at Bruni but a short time previous to our visit, yet, as the season is considered the healthy time of the year, it was not thought necessary to resort to any wholesale distribution of quinine during our stay, and its administration was altogether discontinued on the vessel putting to sea.

"No case of fever can be traced to the slight and short exposure of our men at Borneo, for though one or two cases appear under the head of fever during the first quarter, they were considered rather to be dependent on insolation that due to malaria. While the ship was at Singapore in the month of July and first week of August, five cases of remittent fever were placed on the sick-list. Though ushered in with severe gastric, and in one case head symptoms, they proved very tractable to quinine, preceded by either an emetic of ipecacuanha, or a calomel and jalap purge. No complication arose. On subsidence of the pyrexia, the patients were always a considerable time in regaining their strength, the chief feature of the complaint being the prostration which followed upon it. Nitre was as a rule given in this stage as a medium for the quinine, which was continued until and even after the appetite was fully restored. H. M. S. Coquette appeared to suffer from these mild febrile attacks to a degree out of all proportion to her complement as compared with this ship. She had, however, been lying for several months at anchor at Singapore, and for a week or two had been under repair in New Harbour, a locality too confined and protected from the sea breezes, which seem to render the open roadstead at Singapore singularly salubrious and cool for a tropical place. Heavy squalls bringing rain showers, which occur generally once in the twenty-four hours, contribute, it must be admitted, to this salutary result. The south-east wind is considered a baneful wind (the Java

* Acting Surgeon R. Purves.

Java wind), and it prevailed from that quarter during the month of June, yet it cannot be said that an increase of sickness resulted further than a few cases of fever, which occurred, as has been stated, in July."

In the Rifleman there were twenty-seven cases of primary fever. One of the cases is classed as continued; it proved fatal in hospital on the fifteenth day. Of the remainder, five are classed as remittent, with an average duration each of between ten and eleven days, and twenty-one as febricula, each of which was between three and four days under treatment.

There were nine cases of primary fever in the Salamis, and three in the Scylla. The cases in the Salamis were ephemeral and comparatively trifling, but in the Scylla one was a very well-marked specimen of enteric fever. The man, a marine, was placed on the sick-list on the 16th of December, complaining of giddiness, want of appetite, and of debility. There was great deafness, and so much stupor, that but little reliable information could be obtained from him. He staggered in his gait. His messmates stated that he had eaten nothing, and had not been himself for a week past. On the 20th there was pain along the course of the ascending and transverse colon, and tenderness on pressure there; the bowels were loose, and he was delirious, lying on his back muttering, but capable of being roused, when he would answer questions in a vacant, inattentive manner. Sordes were collecting on his teeth and gums; the pulse was very small, weak, soft, and 132. On the 21st the muscular debility, and the tremulous movements of the upper limbs, were very marked. On the 22nd rose-coloured spots were observed about the trunk; the bowels were frequently moved, the stools being copious, dark-coloured, and very fetid. He lay muttering to himself; his countenance was dusky brown, expressionless, and apathetic. In this condition he was removed to sick quarters at Yokohama, where, at the close of the year, he was progressing favourably.

There were eighteen cases of primary fever in the Serpent, and fourteen in the Slaney. Little or no information, however, is given in connection with them.

In the Swallow there were only four cases of primary fever, but one of them proved fatal. It occurred in the person of a seaman, one of a boat's crew, who appears to have been exposed to malarious influences at Batavia. He was

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placed on the sick list on the 21st of May, eleven days after the vessel left Batavia, complaining of violent headache, and pain in the back and loins. The pulse was full and strong; the tongue covered with a white fur; the breath foul; the skin dry and intensely hot. The liver was tender on pressure, and enlarged at its lower border. Three hours afterwards he was giddy, restless, and drowsy, only answering questions after being shaken. At 4 p.m. he passed, by the action of medicine, a large quantity of fetid black fluid matter from the bowels, with four ascarides. After this he appeared more sensible and less drowsy. On the following morning he appears to have had a remission, but again in the evening an exacerbation came on, and he became half insensible, delirious, and very restless. On the 24th there was no improvement; at 4 a.m. there was trismus, and at 8 a.m. he died delirious and in convulsions. Throughout his illness, the medical officer* says,—

"There was no vomiting (excepting after the emetic), yellowness of skin or conjunctivæ; and no eruption. He never complained of indisposition until the 21st.

"Post-mortem examination of the body.—There was no emaciation. The liver was enormously enlarged, extending below the umbilicus; its substance was of a brick-red colour; there were no abscesses in it. The gall bladder was empty. Some dark-coloured fæcal matter was found in the intestines, the mucous membrane of which was injected. Other organs healthy."

Small-pox.—There was a single case of small-pox in the Adventurer. It occurred at Nagasaki in the person of a young officer, and was contracted either at Tientsin or Pekin, which he had been to visit. It was modified by previous vaccination.

There were three cases of small-pox in the Barrosa. The surgeon† of the ship says,—

"We arrived at Nagasaki on the 9th of September, and sailed for Hong Kong on the 10th. The day following three men came under treatment for slight fever; all presented the same symptoms. On the following day a vesicular rash appeared over their bodies. Suspecting variola, I had them separated from the ship's company by a canvas screen. The fever decreased and the eruption resembled varicella. The central depression could not be detected in the vesicles until the 14th, when one of the patients showed this diagnostic sign, and decided the cases to be the most modified form

* Acting Surgeon J. B. Nicholl, M.D. † Surgeon R. L. B. Head.

form of variola. On the afternoon of the 17th (the date of our arrival at Hong Kong) they were removed to the Dove, a gun-boat set apart for these cases. In no instance did the disease run on to the suppurative stage, and on the eighth day from the appearance of the rash the skin was clear of the same. The men returned to the ship on the 23rd, as we were under orders for sea on the 24th. In each of these cases vaccination marks were quite distinct. I take the disease to have been of that form described by Watson as the second kind of eruption in the modified complaint: 'Sometimes the papulæ show little fluid on their tips only, but never fairly suppurate, nor break, but the vesicles dry up, and hard prominences remain with livid bases and hardened summits.'"

There was a single case of small-pox in the Hesper. It occurred at Hong Kong in the person of a stoker. The disease was contracted at Canton, where the vessel had been lying, and where the man had been frequently on shore. There was a good vaccination mark, the operation having been performed in infancy. The case was rather a severe one, nevertheless.

In the Manilla also there was a single case of small-pox. It occurred at Shanghai in the person of a marine, and was modified by previous vaccination.

There were five cases of small-pox in the Princess Royal. The disease was contracted in Japan. One of the cases was of a somewhat severe character, but not confluent. All the men had been previously vaccinated. The surgeon states that in May 1865, he re-vaccinated in over 200 doubtful cases at Singapore, and that three of these patients were among the number. Finding the lymph in the capillary tubes of no use, he took four of the healthiest of the ship's company to the house of a Chinese at Singapore, and from a child vaccinated both arms of each man, and from these, in due time, all the ward-room and gun-room officers, as well as the doubtful cases among the ship's company. "Every man in the ship," he states, "has been vaccinated." Unhappily, the protection afforded by this mode of vaccinating did not ward off a very virulent epidemic of small-pox that occurred in this vessel subsequently, as will be hereafter seen in the Statistical Report for 1867.

A single case of small-pox, which had a fatal termination, occurred in the Rattler, at Penang. With reference to it the surgeon makes the following observations:—

"At Penang, where the vessel remained from the 23rd of April to the 29th of May, no case of primary fever came under notice. Here,

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Here, however, unfortunately, a seaman contracted small-pox, which, though the man had good vaccine marks, assumed the confluent form, and terminated fatally on the 1st of June. Small-pox had been prevailing among the Malay population of the island, with whom our ship's company, owing to the very frequent leave granted, had free intercourse, and the man who contracted the disease had even more frequent opportunities of coming in contact with the natives, as he belonged to the captain's gig. The disease was said to be on the decline during our visit, and only one European, I was informed, had been attacked. I have since heard that an officer of the Royal Artillery, stationed in Fort Cornwallis, and the wife of one of the gunners, were seized with small-pox shortly after our departure from the island. They were the only cases that occurred in the garrison. The ship put to sea and was proceeding under sail down the Straits of Malacca, before this case—fortunately the only one which occurred among the ship's company—became fully confirmed. We were bound to the town of Malacca, but on the appearance of the disease, merely communicated by signal in passing, and hastened on under steam to Singapore. During the voyage the patient was isolated—at least as far as could be done in a ship wanting the comforts and conveniences of a sick-bay—in a cot under the top-gallant forecastle, and nursed by three messmates, who bore very evident traces of having themselves suffered from the malady. After the patient's death these attendants were kept apart from the ship's company for eighteen days, and during this time were employed in cleaning, by lime-wash and fumigation, the deck and under the forecastle where the cot was slung. The cot itself, the bedding, sheets, clothes, utensils, &c., used during the illness were thrown overboard with the corpse, which was buried at sea the day previous to our arrival at Singapore. It is perhaps owing to the thorough way these precautionary measures were carried out, that this disease was prevented from spreading among the crew, and confined to this case. Of course the rapidly fatal termination of the case did not allow the disease to advance to its most infectious stage. The Chinese practise inoculation among their children generally in the first quarter of the year, and the disease being then rife, Europeans visiting their ports, and perhaps their houses, are at this time more frequently attacked. If they use a sampan they come into immediate contact with a whole family. As one case had manifested itself in the Hesper at Hong Kong, though the infection was traced to a visit to Canton, I took the precaution, shortly after joining the ship, of carefully examining, individually, the whole of the crew, and ascertained that, of the complement—

7 were unprotected either by vaccination or a previous attack.
3 showed doubtful vaccine cicatrices:
113 bore good vaccine marks (this included all the officers).
46 had suffered from small-pox, the majority well marked.
18 (Chinese, usually inoculated in infancy.)

187–the total number on the ship's books in February 1866.

"Vaccination was performed on the seven unprotected, and the three doubtfully-protected individuals, with lymph procured at Hong

Hong Kong, and with satisfactory results; for, in all, the characteristic vesicles were produced, matured in the recognised time, and were able to propagate themselves."

The disease assumed a very virulent form in this case even at the very onset. The patient was placed on the sick-list on the 26th of May. On the 28th the oppression was very great, and there were nervous twitchings of the arms. On the 29th a vesicular eruption appeared over the abdomen without areola or central depression, and on the same evening it covered the forearm and appeared on the face. On the evening of the 30th the eruption was very copious and confluent over the face, and it was also observed over the mouth and palate. On the 31st he appeared better, and to be progressing favourably until noon, when sudden symptoms of sinking set in, and he expired on the morning of the 1st of June.

There was a single case of small-pox in the Rifleman. It occurred in the person of a petty officer, who contracted the disease at Hong Kong at a time when it was prevailing epidemically on shore. No mention is made as to whether he showed vaccine cicatrices or otherwise. The same may also be said of a single case of small-pox which occurred in the Salamis at the same place.

In the Scylla there were seven cases of small-pox. They occurred in the Christmas quarter of the year when the vessel was at Yokohama. All the persons attacked had been previously vaccinated, but in one the attack was very severe, the disease assuming the confluent form. As a rule they were discharged to hospital in the stage of premonitory fever.

Diseases of the Brain and Nervous System.—There was a slight increase in the ratio of cases coming under this head compared with the preceding year, and there was also a slight increase in the invaliding. The ratio of mortality was precisely the same as in 1865. All the mortality was occasioned by insolation and delirium tremens.

There were eighteen cases of delirium tremens in the squadron during the year, three of which terminated fatally. Of the total number of cases, four occurred in the persons of commissioned officers; one, in a warrant officer; two, in petty officers; four, in seamen; one, in a stoker; three, in marines; and in three instances the ratings are not given. All the fatal cases occurred in the persons of commissioned officers.

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Twenty-one cases of insolation were under treatment during the year, of which four terminated fatally. Of the total number of cases, thirteen occurred in the Basilisk at Shanghai, and with reference to them the medical officer* makes the following remarks:—

"Heat apoplexy. Of this disease we had thirteen cases. They all occurred on the 14th and 15th of August, the two hottest days of the year. None proved fatal, although a great many deaths were reported at this time among the English residents from the same disease.

"The complaint was really cerebral congestion, and was quite different in its symptoms from sunstroke. The patients were nearly all either quartermasters or sentries on duty during the hottest period of the day. The symptoms were, sudden inability to walk or stand, intense frontal headache, flushed face, a full bounding pulse, and generally pain in the back. The tongue soon became thickly furred. The headache in some cases was so acute and agonising, that the patients literally screamed with pain. Only one case presented any symptoms of delirium. The average duration of each case was between three and four days.

"In the treatment I was strongly tempted to take blood from the arm; but, taking into consideration the weakening effects of climate and great heat, I considered they would require all the blood they had. I began with a strong calomel purgative, repeated if necessary. The hair was closely cut, or the head shaven, and ice applied to it. But what I found most beneficial was playing a small stream of iced water on the head. Under this treatment the headache soon left them, and all the acute symptoms subsided."

On the 14th of August, one of the days spoken of by the medical officer of the Basilisk as being the hottest in the year, two fatal cases of insolation occurred in the Algerine. The thermometer ranged from 88° at night to 104° Farhenheit in the middle of the day. One of the cases occurred in the person of a chief petty officer, a man of a somewhat broken-down constitution. The first symptom he presented was great excitement, during which he went on deck and asked to see the commanding officer. When seen by the medical officer he was lying on the lower deck unconscious. The skin was warm and moist, the pulse regular, 86. The pupils sensitive to the light, the breathing regular, and there was no vomiting. Cold applications were applied to the head and neck, but he never rallied, death taking place in about an hour and a half after he was first seen.

Much

* Acting Surgeon George Monteath, M.D.

Much about the same time a non-commissioned officer of Marines, who had had some purgative medicine in the morning, which, however, had not operated, became also insensible. In his case also, the skin was soft and moist, the pulse, 89, and there was no stertor. Two drops of croton oil were placed on the base of the tongue, and cold applications applied to the head and neck. He died, however, in two hours from the time of his becoming insensible. The bowels had not been moved.

There was a fatal case of heat apoplexy in a marine of one of the gunboats. He was sent to do duty at the naval yard at Shanghai, and died in the consular jail there while undergoing imprisonment for drunkenness. He was a man of exceedingly intemperate habits. On the 4th of August, the day on which symptoms of heat apoplexy set in, the thermometer reached 100° Fahrenheit in the shade. He was taken ill in the evening, and died in the afternoon of the following day.

A fatal case of insolation occurred in the case of a marine of the Serpent. He had been on shore on leave, at Shanghai, from the 12th to the 14th of July, when he came on board about midday, in a state of intoxication, bareheaded, the heat being 140° in the sun, to the rays of which he was fully exposed. Symptoms of apoplexy set in about 4 p. m., and rapidly carried him off.

Diseases of the Organs of Respiration.—There was a decrease in all the ratios coming under this head, compared with the preceding year. In the ratio of cases the decrease was to the extent of 46·9 per 1,000 of mean force; this arose altogether from the comparative freedom enjoyed by the squadron, from cases of influenza and catarrh. In 1865, the ratio of cases under that head was 129·5 per 1,000, while in 1866 it was only 81·6.

Diseases of the Heart and Bloodvessels.—There was a very trifling difference between the various ratios under this head compared with the preceding year. In the case and death-rates, the difference is in favour of 1866, but the invaliding rate was higher than in 1865.

There was a fatal case of disease of the heart in the Rattler; it occurred in the person of a stoker, who had been discharged to the Civil Hospital at Singapore, for rheu-

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matic carditis, but rejoined the ship on her being about to proceed to sea; he was unable, however, to resume his duty, owing to palpitation and general debility, so that it was found necessary to enter him on the sick-list on the day of his return. On stethoscopic examination, a bellows murmur was heard, and the impulse of the heart is said to have been lower than normal. While the ship was at Penang, to which she had gone after leaving Singapore, he appeared to improve, although once or twice he was very much reduced by attacks of debility. On the return of the vessel to Singapore, the cardiac symptoms again became prominent, and he was, for the second time, sent on shore to hospital, where there being no prospect of his ever being able to resume duty, he was invalided. He continued in hospital for some time afterwards, waiting a passage to England: but on the wards becoming overcrowded, he was again sent on board his ship, to await the arrival of a vessel which had been ordered home. He was placed on a somewhat restricted diet, and cautioned to be exceedingly careful not to exert himself. He had occasionally short attacks of palpitation. At 9.50 p. m. of the 28th of July, when sitting on the forecastle talking with some of his messmates, and speaking hopefully of the prospect of soon getting home, he suddenly fell on the shoulder of his neighbour, and immediately expired. The body was removed to the general hospital, and examined there. It had the appearance of being well nourished, and was generally pale; but the head, shoulders, and upper extremities were of a livid hue; the lungs were healthy, and there were no traces of adhesion, either of the pleuræ or pericardium: the latter sac contained two ounces of serum; the heart was enormously enlarged, weighing, when empty, twenty-one ounces; the hypertrophy was caused by the increased development of the muscular tissue of the ventricles, chiefly the left; the endocardium was free from any signs of recent inflammation; the mitral valves were rigid and thickened, and there was a tendency in different places to ossification; the semilunar valves of the aorta were very much thickened throughout, and in the aortic surface of the anterior one, a large mass of ossific matter, almost gritty to the touch, was discovered; it did not involve the free margin of the valve, only approaching the thickened band extending from the nodulus to the attached edge; the aorta was thought to be of greater than normal calibre, but the coats of the vessel were not diseased; the pulmonary valves were healthy, as also was the tricuspid; the liver was considerably enlarged; the spleen

of

of natural size, though rather frangible; the kidneys were healthy; the peritoneal cavity contained a little serous fluid.

The foregoing history and report of the post-mortem examination of the body is abridged from the more extended one of the acting surgeon* of the vessel.

A fatal case of aneurism of the aorta occurred in the person of a marine of the Basilisk, who was sent for treatment to the hospital at Hong Kong, with the following statement of his case:—

"This patient, who has just come on board from gaol, was entered on the sick-list on the 29th of July, complaining of pains at the base of the left lung, slight cough, frothy expectoration, dyspnea, &c.; the pulse was quick and soft, the tongue very foul, and the skin cool. On examination, there was decided dulness at the seat of pain, fine crepitation, and harsh expectoration. He improved rapidly under antimony and stimulants, with counter-irritation; the respiratory sounds became clear, and in ten days he felt nearly well. On the 10th of August he complained of severe pain in the spine, about the first lumbar vertebra; there was no tenderness on pressure, but a tendency to shift up and down. This same pain has been twice removed by blistering, but always returns. He now complains of pain at the apex of the left lung, with cough and frothy expectoration; there is dulness with harsh respiration; the vocal resonance is increased; there are, in fact, the symptoms of tubercular deposit. The treatment has latterly consisted in supporting the strength and alleviating the painful symptoms."

He was admitted to hospital on the 26th of August, when it is stated that the left kidney appeared to be affected; he could not lie on his left side. The further history of the case is thus reported by the Deputy Inspector General† of the hospital:—

"27th. Bowels opened once; has had violent pain in the side during the night, under the lower ribs; slept none. 10 a. m. Has thrown up a large quantity of blood, and is extremely weak. The ejected blood was at first bright red and frothy, with tenacious mucous sputa; he afterwards vomited a quantity of dark-coloured blood, and a coagulated mass; was very restless, with a slow weak pulse; the pain felt was over the left kidney and along the spine, with inability to lie on his back; small pieces of ice afforded relief. 28th. Pain over ensiform cartilage; no return of hæmoptysis; slept pretty well; pulse stronger. 29th. No more blood; feels very weak;

* Acting Surgeon R. Purves.

† Deputy Inspector General R. Bernard, M.D.

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weak; slept none (urine almost neutral, Sp. gr. 1,023; no albumen); tongue foul; no appetite. 30th. Passed a good night; sputa tinged with blood; no vomiting; some sleep. 31st. Slept well; no blood in sputa; some cough and nausea. 1st September. A large quantity of sputa tinged with blood; no nausea; slept none; slight cough; bowels opened once. 2nd. Feels something better; still spits a good deal; sleeps better; remained in an easy and comfortable condition until 2.25 p. m., when wishing to expectorate, he was raised from the reclining position, and a quantity of bright-coloured blood rushed from his mouth; he fell back in the bed insensible, and gradually sank, it being impossible to administer any stimulant. He died at 3.5 p. m. *Sectio Cadaveris.*—Body well proportioned, but rather emaciated. *Abdomen.*—Stomach found almost filled with a firm coagulum of pure blood, which, when turned out, retained its form; mucous membrane healthy; the lower third of the œsophagus contained a small quantity of blood; intestines healthy, the small containing grumous fluid. *Thorax,* pleuræ healthy; left lung healthy; right lung contained a vomica in the posterior inferior portion of the lower lobe, containing dark disintegrated matter; heart healthy. On removing the thoracic viscera and examining the vessels, the descending aorta, about two inches above the diaphragm, was found dilated into an aneurisimal sac of a globular form, which had opened into the œsophagus; the membrane of the sac was thin and dark coloured, and around the sac itself was a clot of blood; the left kidney was hypertrophied; the substance was coarse but not diseased."

Upon this case the same officer makes the following observations:—

"This was a very interesting case. At first it was a question whether the left kidney was not greatly diseased from the constant severe pains felt in the lumbar region, immediately over that organ, increased on pressure, and from the urine being greatly diminished in quantity. By the symptoms, and his appearance, I apprehended the presence of an aneurism of the aorta, which I mentioned to the assistant surgeons, and requested them to assist me in the diagnosis, by their greater aptitude for distinguishing stethoscopic sounds; but the patient's irritable temper, and extreme debility, rendering minute or long continued examination unadvisable, no bruit, nor other sound indicative of the disease was heard. But in this case the detection of the thoracic aneurism was particularly difficult; being situated in the descending aorta, percussion did not afford any testimony, owing to the lung being diseased; pneumonia and aneurism having many signs and symptoms alike, such as crepitation, rusty sputa, dulness, increased vocal resonance, and hæmoptysis. The examination of the body was highly important as determining the aneurism to be the cause of death."

Diseases of the Alimentary Canal.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, equal to 43·2 per 1,000 of mean force; there

there was a fractional increase in the invaliding rate, but the ratio of mortality was decreased by 1·2 per 1,000. Almost all the decrease in the ratio of cases arose from the comparative freedom from diarrhœa, enjoyed by the squadron. Sixty-six cases of dysentery and 504 of diarrhœa were under treatment during the year; of which, fifteen of dysentery and fifteen of diarrhœa were invalided, and sixteen of dysentery proved fatal. Each case of dysentery was under treatment on board ship and in hospital, on an average about twenty-nine days; and each case of diarrhœa over eight days. In 1865 the average duration of each case of dysentery was about thirty-seven days.

There was a fatal case of enteritis in the Adventure. It occurred in the person of a marine, at no time a very robust man, but who had enjoyed tolerably good health during the four-and-a-half years he had been embarked in the Adventure. He had, however, suffered from fever in the previous year, but made a good recovery. He was entered on the sick-list at Shanghai on the 22nd of October 1866, complaining of a feeling of chilliness, with a sense of aching in the limbs, much languor, and an impaired appetite. These symptoms had existed for a day or two previous to his making any complaint. The symptoms on the 22nd were giddiness, heat of skin, quick small compressible pulse, thirst, foul tongue, slight relaxation of the bowels, and high coloured urine. He was put to bed; placed on a farinaceous diet, with rice water for drink; and a saline mixture was prescribed. On the 23rd the feverish state still prevailed, the bowels had been relaxed during the night, but without pain or uneasiness, his only complaints being vertigo and general debility. On the 25th the bowels were relaxed, the stools being liquid and feculent, and without mucous discharge. There was a little griping before the motion, but so slight that he only admitted it when questioned. On the 30th he had a very restless night, owing to an attack of diarrhœa, with intense griping. The stools, though loose, were feculent, and each motion was followed by great relief. On the 1st and 2nd of November he was making steady improvement, the pulse was under 100, of fair volume, the tongue was moist and cleaning. His bowels had been moved, and great relief obtained from flatulent distension, which had caused him much uneasiness. The surgeon of the vessel continues the report of the case, as follows:—

"3rd November. This morning, feeling so well, he very imprudently

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dently left the sick bay to wash in his mess-place, where he was exposed to a high wind, and got completely chilled. On his return to the sick bay, very severe pain in the bowels, and some tenderness along the left side of the umbilicus, came on. Half a drachm of chlorodyne was given, and turpentine stupes had recourse to, with very marked relief to the symptoms. The pulse was 100, moderately full, the tongue moist. At 4 h. 30 m., p. m., a state of collapse suddenly set in; the extremities got cold; the pulse from being of tolerable volume, became scarcely perceptible at the wrist. The voice continued strong, but he became restless, and complained of dyspnœa. Brandy and egg mixture was administered, and hot water bottles applied to the extremities, but without avail, as he continued to sink, and expired at 7 h. 30 m., p. m. A post-mortem examination of the body was made thirteen hours after death. The abdomen was opened by an incision through the parietes, from the ensiform cartilage to the umbilicus, and carried on to the middle of Poupart's ligament on each side. The triangular flap included in the last incisions could not be raised, owing to extensive adhesions between its peritoneal covering and that of the anterior layer of the great omentum. On breaking up the adhesions, the entire surface of the peritoneum exposed was opaque, thickened, and vascular, more especially over the small intestines and in the iliac fossæ. The convolutions of the small intestines were in many places, and to great extent of surface, glued together, and to the under surface of the omentum, from recent inflammatory action. The liver was found in a healthy condition, with perhaps a slight enlargement of the left lobe. The spleen also seemed healthy. The cavity of the peritoneum contained a couple of pints of what appeared to be serous fluid, mixed with liquid fæcal matter. The small intestine showed signs of inflammatory congestion. The cæcum appeared tolerably free, but the colon, in most of its extent, was of a deep red colour, excessively congested, with large patches of lymph thrown out. A small slit was discovered a little above the sigmoid flexure, through which fæces oozed. A large portion of the descending colon being included between ligatures, was removed and examined. Its mucous surface was thickened, pulpified, and an ulcer of the size of a shilling was observed perforating the coats of the gut. The escape of fæces through this opening, no doubt, excited the peritonitis, which ultimately caused death. No examination of other cavities was made."

A fatal case of peritonitis occurred in the person of a marine of the Pearl. He was placed on the sick-list on the 11th of October, suffering from pains in the abdomen, nausea, and headache. He improved steadily until the 17th, when all his symptoms were relieved, and in this state he continued until the 20th, when having taken his usual rations for dinner (pork and pea soup), he was again seized with pain and sickness. After this there was some amount of tenderness over the abdomen; the pulse continued of normal strength (80); the tongue was coated; the skin cool. On the 22nd he was much improved; the pulse 72; the bowels relieved

relieved twice naturally. On the 23rd he was quite relieved, and his appetite was returning; he had slept well, and had no headache. On the 24th he was gaining strength, and was ordered fowl-broth, wine, and quinine. Unhappily he does not appear to have been able to restrain his desire for food, as it is reported on the 25th, that he had over-indulged his appetite and eaten some of the fowl itself, and as a consequence had been sick afterwards. A sinapism was applied to the epigastrium. At 4h. 30. p.m. of that day, having been quite easy previously and slept in the afternoon, he was suddenly seized with spasmodic pains and contractions in the abdomen, the pain being referred to the hypogastric region, the patient sitting up in bed, with his knees drawn up on his abdomen, beads of perspiration covering his face, which wore an expression of greata gony. At 5h. 30. there was no relief to his symptoms, the abdominal muscles were strongly contracted, the fingers bluish and shrivelled, and the pulse rapid. Turpentine stupes were employed, and he had an ounce of brandy, with twenty-five minims of laudanum, given him in hot water. At 6h. p.m. he was entirely free from pain, and expressed himself greatly better; at 7h. he was asleep; at 10h. he was sleeping quietly; at 11h. he awoke and said he was easy; he attempted to use the bed-pan, and felt very giddy; he remained quite quiet thereafter, and expired at 3h. a.m. of the 26th. The report of the autopsy by the surgeon* of the ship is as follows:—

"General indications of recent peritonitis existed, and in the mesentery a large cavity, from which purulent matter welled up, was seen. There was a large quantity of fluid, consisting of pus mixed with serous effusion, in the peritoneal cavity. The seat of the abscess corresponded exactly with the seat of acute pain experienced by the patient a few hours before his demise. A portion of the intestine was opened and found deeply injected."

There was also a fatal case of peritonitis (probably arising from intus-susception) in the person of a seaman of the Princess Royal, who was placed on the sick-list on the 8th of January at Yokohama, with all the symptoms of inflammation of the peritoneum. On the following day the pulse was wiry and quick; the bowels obstinately confined; and the abdomen tympanitic. Vomiting then set in, and was almost incessant, and in this condition he was sent to the sick quarters at

* Surgeon J. T. Gabriel.

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at Yokohama on the 15th of January, and died on the 20th. The bowels on his being admitted, had not, it is stated, been moved for eight or nine days, but careful manipulation failed to detect any accumulation in the course of the intestines; no efforts could produce any action of the bowels. The day after his admission to sick quarters he was sick several times, the vomiting being stercoraceous. He died without his bowels being moved. Unfortunately no post-mortem examination of the body was made.

Diarrhœa and Dysentery.—The vessels that suffered most from these affections were the Adventure, Argus, Barrosa, Basilisk, Hesper, Osprey, and Perseus.

In the Adventure there were four cases of dysentery, and 121 of diarrhœa. One case of dysentery, and forty-six of diarrhœa, occurred during the Midsummer quarter of the year, when the vessel was at Hong Kong. The diarrhœa was troublesome and very intractable, and prevailed very generally throughout the ship, and continued into the Michaelmas quarter, when there were sixty-two cases entered on the sick-list. The disease, it appears, was extensively prevalent amongst the ships in the harbour. The assistant surgeon* says:—

"During this time diarrhœa and dysentery were rife in many ships in harbour, but none suffered so severely as the U.S.S. Wyoming, which had, I understand, at one time sixty men on tha sick-list out of a complement of 200, all suffering from these complaints. During the month of July we have had thirty-three cases of diarrhœa, but fortunately none of dysentery."

Every effort was made to check the epidemic, but without effect. The men were sheltered from sun and rain; their diet carefully inspected; fruit, fish, &c. forbidden; and coffee substituted for cocoa at breakfast. With reference to the few cases of dysentery that occurred in the Adventure, the surgeon remarks:—

"During the time the vessel was in China but little dysentery, comparatively, appeared on board; and this I attribute entirely to the fact that condensed water only was allowed to be drunk by the men."

There were thirty-six cases of diarrhœa in the Argus. They do not appear to have been of much importance. They occurred

* Assistant-Surgeon Thomas Purcell.

occurred mostly in the Michaelmas quarter of the year, just as the vessel was leaving Hong Kong for Japan. A large number of men suffered from the disease, but in the majority the attack was so mild that it was not considered necessary to place them on the sick-list. The average duration of each case was about four days.

There were forty-one cases of diarrhœa and one of dysentery in the Barrosa; the surgeon of which, speaking of the month of January, when the vessel was at Shanghai, says:—

"During the month several cases of mild diarrhœa and colic came under treatment. These were all amenable to cure. I attribute the cause of this attack to the state of the water supplied by the contractor. This water he guarantees to be pure; it is supposed to be procured from the lakes in the interior, and filtered on its arrival before being sent off to the ships. I examined the water in the tanks alongside, and found it full of vegetable matter. On representing the case to the captain the contractor was cautioned to fulfil his contract, otherwise it would be given up. After this the water came off more pure, yet still a certain amount of vegetable water remained, and it could not be compared with the purity of the distilled water made on board. The only thing that prevents Her Majesty's ships from condensing water in this river, is 50 cents. difference in the price per ton. The use of condensed water for drinking has been advocated by every medical man stationed here, as a preventive of disease, and it is surprising that its use is not insisted on."

There were thirty-six cases of diarrhœa, and one of dysentery, in the Basilisk. The cases of diarrhœa were as a rule mild, the average duration of each case being between four and five days. The case of dysentery, however, was a very unfavourable one from the beginning. It became complicated with hepatitis, and three months after the man's admission to the sick-list he died in hospital. On post-mortem examination of the body a large abscess was found in the liver, and purulent infiltration of the right lung.

There were sixteen cases of dysentery, and seventeen of diarrhœa, in the Hesper. They were attributed for the most part to rapid alternations of heat and cold, the days being exceedingly hot, and the nights so cool that a difference of 50° was sometimes experienced. Acute cases of dysentery were most common at Shanghai, and chronic attacks or relapses at Hong Kong. In the winter diarrhœa was common, and often attacked those who had been previously

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affected in the summer. "The winter diarrhœa being due, I suppose," the medical officer* of the vessel remarks,—

"to lessened action of the skin, and a determination of fluid to the bowels; the summer diarrhœa to over-action of the skin, inspissated blood, congested liver, and acrid bilious secretions. Plenty of warm clothing, and blankets to sleep under at night, that the cold may not take the men by surprise, would appear to be a good protection."

There were six cases of dysentery and thirty-five of diarrhœa in the Osprey. The majority of these occurred during the Michaelmas quarter of the year, when the vessel was a good deal at sea cruising for the suppression of piracy, during which the men were much exposed, and their diet consisted chiefly of salt provisions. To these causes the bowel affections are for the most part attributed.

In the Perseus there were three cases of dysentery and forty-six of diarrhœa. The majority of these occurred in the Michaelmas quarter of the year, when the vessel was stationed at Amoy, and with reference to them the surgeon makes the following observations:—

"Three cases of dysentery occurred, each being on an average thirteen days under treatment on board ship. All were sent to hospital. Two of these cases occurred in September while the ship was at Amoy; the third occurred at sea when near Japan. The first case had had no previous attacks of fever or diarrhœa in this ship, and had not been more exposed to malaria or other exciting causes than the rest of the crew. During the time he was on board he never passed blood in the stools, but all the other symptoms of the disease were well marked. The second case had had fever twice in the early part of the year, but never had diarrhœa; he had, however, suffered much from disease of the heart and palpitation, which probably reduced him so as to predispose him to any prevailing disease. The third case came on after the ship had been a month away from Amoy, and as we were nearing Japan, and the cold weather beginning. All those three cases were treated with ipecacuan; in the first and third it was well borne, and answered well; in the second, however, it produced so much vomiting and distress that it was given up, and Dover's powder substituted. The cases, as previously remarked, were all sent to hospital at the earliest opportunity.

"Forty-six cases of diarrhœa have been placed on the sick-list, with an average duration of over eleven days' sickness to each case. This has been the most prevalent disease of the year. The cases have occurred every month excepting January and February, but in July

* Assistant-Surgeon Alfred Brend.

July the disease assumed an epidemic form, and in a few days attacked a large part of the ship's company. This outbreak of diarrhœa was intimately connected with the fever which prevailed at this time, and has already been mentioned under the head of febricula. A more detailed account of the combined diseases may here be necessary.

"From the beginning of April to the 27th of June this ship had lain in Amoy inner harbour, with the exception of a short cruise of three days in the immediate neighbourhood of the port. During the whole of this time the weather had been getting gradually hotter as the summer advanced. In April the thermometer ranged between 58° and 76°; in May between 65° and 83°; in June between 70° and 87°, and the north-east monsoon prevailed with but few exceptions during this period, and moderated the temperature very considerably. In fact, the inhabitants of Amoy considered it a very unusually cool season. Rain fell on an average nine days in each month. The position in which the Perseus was anchored is that usually occupied by men-of-war of moderate size. It is at the narrowest part of the inner harbour, between the high rocky peaks of the islands of Amoy and Kulungsu. These peaks here vary from 80 to 400 feet high, and between them a breeze generally blows at some time of the day, even during the stillest and hottest time of the summer. The town of Amoy, with all its fearful abominations, lies to the north and north-east of this anchorage, while the above-mentioned peaks lie to the north-east, east, and south-east, and are covered with thousands of Chinese graves. Of all the Chinese towns that we have seen, Amoy is the most filthy, and presents in the most concentrated form all the worst sanitary conditions possible to imagine. The admirable description of it given by Dr. Wilson, in his 'Medical Notes of China,' applies nearly as well now as when it was written, and it certainly appears miraculous that Amoy is not constantly devastated by fearful epidemics. To judge from the many cases daily seen at the Chinese Hospital, it is certain that an immense but unknown amount of disease exists amongst its inhabitants. During the north-easterly monsoon, the wind blows towards the anchorage directly over the town, the hills covered with graves, and the intermediate space where there are immense tanks for the storage of human manure. Notwithstanding this evidently unhealthy relation of the ship to the shore, little disease occurred in the former up to the end of June, which could be traced to this source, but doubtless it tended to undermine the resisting power of the men, and so laid the foundation of what took place in July. On the 27th of June the ship proceeded to sea, and anchored on the 29th among the Pescadore islands. The south-west monsoon was encountered as soon as we left Amoy, accompanied with rain, a considerable rise of the temperature, and a heavy tumbling sea, necessitating the use of steam, the barring-in of all the ports, and covering of most of the hatchways. All this rendered the ship exceedingly hot, and prevented proper ventilation being carried out; at the same time the men were much exposed, and hard worked. The berthing accommodation in this ship is insufficient for her crew, many of whom are accordingly forced to

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sleep on deck, or go below where the temperature at the time was almost unbearable. Together with those unfavourable circumstances, there was also the change from harbour diet to ordinary salt provisions. Accordingly on the 1st of July, three days after leaving Amoy, diarrhœa combined with febricula began to prevail, and very soon attacked the greater part of the ship's company. The two diseases were so generally combined, that it was often difficult to assign the cases to their proper category. They have been, however, classified according to the most prominent symptoms. In the first week of July, thirteen cases of febricula were placed on the list, all being characterised by more or less diarrhœa during some part of the course of the attack; while in the same week thirty-eight cases of diarrhœa occurred, of which ten only were placed on the list. Most of these ten cases were attended by slight fever, the diarrhœa being the more prominent symptom, and in several it proved very severe. During this week we were cruising between the Pescadore and Formosa islands, and returned to Amoy on the 8th of July, where we anchored somewhat further out than on the former occasion. In the second week of July only two cases of febricula occurred, both with diarrhœa, while fifteen of diarrhœa occurred, of which only five required to be placed on the list. Four out of the five had more or less fever. The ship remained at Amoy; up to the end of the month only two more cases of febricula were entered on the list, while in the same time seven cases of diarrhœa were treated, two of which were on the sick-list. The diseases by this time had ceased to prevail epidemically. The characters of this febricula are given under that heading; those of the diarrhœa may be thus briefly summed up, viz., frequent loose watery stools, generally of a brownish-yellow colour; griping in the umbilical region; vomiting; a foul tongue, frequently merely white-coated; loss of appetite; considerable thirst; pain in the head and back; and almost invariably great lassitude and weakness.

"During the month of July only two officers were attacked. The large bulk of the cases of uncomplicated diarrhœa were mild and easily cured by two or three days of rest, avoidance of salt provisions, and occasional doses of chalk mixture, or lead and opium. Some, however, even of those in which little fever was present became very chronic, and resisted every plan of treatment adopted. These latter cases were either at once sent to hospital, or returned to the sick-list, after a short and imperfect period of improvement, with symptoms of a more dysenteric nature.

The cause of this large amount of sickness will probably be found when we consider the whole circumstances of the case. The ship's company, amongst whom it chiefly prevailed, were a young unseasoned set of men, who had only arrived in China six months before, and then in the middle of winter; the bulk of them had never been on the station before, and a large number were then for the first time in a hot climate. They had been lying for three months in Amoy inner harbour, where they were exposed to the north-east wind after sweeping over a foul Chinese city 400 yards off, surrounded on the one side by swamps and mudbanks, and on the other

by

by an immense burial-ground and a reservoir of the ordure of the town, the stench from which, as well as from the open mouths of the town drains, was frequently intolerably distinct on board the ship. All this time the drinking water in the ship was procured from the wells of Kulungsu, which are mostly in positions to be contaminated by drainage from paddy fields, besides which the season of the year had arrived, with its high temperature of about 82°, when fever and flux most prevail in China. These circumstances, which may be considered as predisposing causes, would have undoubtedly sooner or later by themselves produced a serious amount of sickness, without what may in this instance be blamed as the proximate or exciting cause, viz., the unfavourable weather encountered as soon as we put to sea, together with the change of diet, and the other circumstances already mentioned. Although not a single case terminated fatally, yet many men contracted a tendency to bowel disease, which will doubtless be followed by a recurrence of some form of the same affection, whenever they may be again exposed to its exciting causes. Already have six of these men who suffered in July been invalided, either from the Melville Hospital ship or from this ship."

Diseases of the Genito-Urinary Organs.—There was a reduction in the total ratio of cases coming under this head, compared with the preceding year, equal to 45·0 per 1,000 of mean force, the reduction in the ratio of cases of venereal disease being 44·4 per 1,000. There was also a reduction in the ratio of invaliding; but whereas there were no deaths from these diseases in 1865, there were three in the present year.

Three hundred and thirty-three cases of primary syphilis, 128 of secondary syphilis, and ninety-four of gonorrhœa were under treatment during the year. The average duration of each case of primary syphilis on board ship and in hospital was a little over thirty-six days; of each case of secondary syphilis, about twenty-seven days; and of each case of gonorrhœa nearly seventeen days. Thirty-three men were daily ineffective from primary syphilis; between nine and ten from secondary syphilis; and between four and five from gonorrhœa.

There was a fatal case of Bright's disease of the kidneys, in the person of a petty officer of the Salamis. His symptoms at first were rather those of aggravated dyspepsia than of any more serious disease; but the continued vomiting, which he suffered in hospital, to which he had been sent, appeared symptomatic of some cerebral lesion, and this became very evident about five weeks after his admission to hospital, when he became drowsy, passed his stools involuntarily in bed, and finally became unconscious, with puffing breathing. On the evening of the day before his

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death the breathing became extremely laboured and rapid accompanied during the night with a loud rattle in the throat. The mouth was drawn slightly to one side, the air being puffed near the left. He expired early the following morning. No reference to the conditions of his urine is made either on board his ship or in hospital. The following is the report of the post-mortem examination of the body :—

"*Body* extremely muscular; slight malformation of the head. *Brain.*—Thickening of arachnoid, and effusion of coagulable lymph over posterior half of the upper surface of each cerebral hemisphere; slight effusion into the ventricles; incised surfaces of brain covered with numerous red points. *Thorax.*—Lungs very large and somewhat engorged posteriorly; heart much larger than usual, the walls of the ventricles being considerably thickened. *Abdomen.*—Liver much increased in size. Structure more vascular than usual. Kidneys enlarged and congested, with considerable deposition of fat into the cortical and tubular textures, evidencing 'Bright's disease.' Stomach and intestines healthy."

There were two deaths from secondary syphilis. One of these occurred in the person of a petty officer of the Leopard, who, having been invalided for the disease, was sent to the hospital at Hong Kong, for the comforts and convenience of hospital treatment, but returned to his ship on her being about to start for England, and died on the homeward passage. He was originally entered on the sick-list on the 17th October 1865, for a bubo in the right groin, following sexual intercourse, but no sore was visible at the time. On the 11th of November, however, he complained of some scalding in voiding his urine, and on close examination a small sore was detected at the orifice of the urethra, resembling a superficial soft chancre. On the 2nd of December the chancre was healing, and the bubo discharging freely; on the 8th he complained of pains in the head and left ulna; on the 10th the chancre was healed; but a papular eruption had appeared on the face, he felt weak, and was losing flesh. On the 13th he had pain in the right knee, very severe at night, and a papular eruption on the hips and thighs. The bubo was still discharging, but healing; on the 16th the pains in the legs were very severe at night. On the 31st the pains were entirely gone, but the eruption on the head and face was painful. On the 6th of January 1866, the eruption was fading, but there were several small sores on the shins and face. On the 10th there was a large ulcer, with ragged cut edges, on each tonsil. In this way he continued improving in respect of one symptom, but immediately thrown back by others becoming developed. His appetite failed, and

and emaciation progressed. The ulceration of the throat extended down the pharynx, and he had great difficulty in swallowing. On the 31st of March he expectorated a quantity of blood, which came from the back of the throat. The place was touched with nitrate of silver, and the hæmorrhage did not return. On the 9th of April he was sent to the hospital at Hong Kong, where he was invalided. He returned to his ship for a passage home on the 24th of the same month. The throat was still painful, and the difficulty of swallowing the same. On the 9th of May an abscess formed on the edge of the right hip. The throat now became so painful that he could only swallow fluids. On the 18th he had a violent attack of dyspnœa, evidently from spasm of the glottis; this was relieved by an æther and opium draught, and inhalation of steam; but the attack recurred, and, the draught and inhalation failing to remove it, his position became very critical, and preparations were made to perform tracheotomy. The attack went off, however, and he had no recurrence of it. Diarrhœa was the next symptom that tended to reduce him still further; but he thought himself better, and felt his throat easier. On the 1st of June he took some food for breakfast, and then went to sleep. About 9.45 a.m. he awoke with hurried breathing; the countenance was pallid, and the features pinched. He did not answer questions when addressed, but lay in a comatose state, the breathing becoming more and more oppressed and gasping, and at 11.0 a.m. he expired.

The foregoing abridged history of this painful case is taken from the more detailed report of the surgeon* of the ship, who gives the following as the appearances found on post-mortem examination of the body:—

"Body emaciated to a skeleton. Entire surface covered with patches of secondary eruption, and the blotches resulting from them. Lungs emphysematous in their upper lobes anteriorly, with small tubercular abscesses in each. Middle lobe of left lung hepatized in its entire extent; right lower lobe slightly so behind. Small tubercular deposits all over both lungs. Pericardium, containing about an ounce and a half of straw-coloured fluid. Liver, apparently healthy. Pharynx, ulceration extending all over the mucous membrane, as far down as the œsophagus and rimà glottidis. Uvula and soft palate destroyed, as well as the epiglottis. Body and left cornu of the os hyoides carious."

The other fatal case of secondary syphilis occurred in the person

* Surgeon James Lilburne.

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person of a petty officer of the Princess Royal. He died in Plymouth hospital.

The vessels that appear to have suffered most from venereal diseases were the Adventure, Argus, Cormorant, Perseus, Princess Charlotte, and the Princess Royal.

There were twenty-four cases of primary syphilis, eighteen of secondary syphilis, and ten of gonorrhœa in the Adventure. One of the medical officers,* whose remarks, however, apply to a period embraced between October 1866 and May 1867, says :—

"With the exception of a case of hydrocele, the diseases of the genital organs are all of venereal origin, which, as might have been expected from experience of the station, especially since the opening of and free intercourse with the Japanese ports, have been very considerable. . . . . An ordinance, in connection with prostitution, of a most stringent character, contemplated by the legislature of Hong Kong, and framed with a view of combining the provisions of the Contagious Diseases Act of 1860 with the Act at present regulating the brothels, if passed into law and efficiently enforced, will go far to exterminate the disease from the colony. Shanghai is still a fertile source of infection, and yet restrictive measures might be adopted with great advantage in all the foreign 'concessions.' It would perhaps be more difficult to deal with the Japanese community in their own ports, and this is the more to be regretted, for there can be little doubt that syphilis is more frequently contracted in Japan, and is of a more severe type, than anywhere else on the station."

There were thirty-six cases of syphilis in the Argus, and four of gonorrhœa. As the medical officer† has not divided the syphilitic cases into primary and secondary, but grouped them altogether, it is impossible to say what proportion they bore to each other. The surgeon says :—

. . . . . "The syphilis contracted at Yokohama is of a very formidable character, the very worst form we have had to deal with on the station. The sore is an indurated one, having a dirty ash-coloured superficial slough, and exhibiting a great tendency to spread unless arrested by some powerful caustic, such as the strong nitric acid. This sore, circular or ovoid in shape, is usually seen at the junction of the glans and prepuce, close to the frænum; in most cases it is accompanied by bubo, which takes place on the groin furthest from the primary sore, and, in spite of any treatment, will generally proceed to suppuration. There is also a great tendency in this sore to break out afresh, after the patient had been discharged from the sick-list, to all appearance perfectly cured. It is possible that this unlooked-for event might have been owing to the mercury having been discontinued too soon. The secondary symptoms, when they do

* Acting Surgeon R. Purves. † Surgeon Raymond H. Carroll.

do follow, are of a pustular character; pains also occur in the shafts of the leg bones, and in the bones of the skull, but none of the men upon whom secondary symptoms have appeared have had any affections of either the eyes or throat."

There were twenty-seven cases of primary syphilis, four of secondary syphilis, and six of gonorrhœa, in the Cormorant. As a rule the sores healed rapidly, but in several instances, after the lapse of ten days or a fortnight, bubo made its appearance, sometimes in both groins; many of these suppurated, and gave great trouble. Only one case of genuine indurated chancre came under treatment. Secondary symptoms appeared to follow the simplest sores.

There were thirty cases of primary syphilis, ten of secondary syphilis, and eleven of gonorrhœa, in the Perseus. Most of this disease was contracted at Hong Kong in the first quarter of the year, when the vessel was refitting and recommissioning. Three cases of syphilis were sent to hospital. One case was entered on the sick-list three times, and another twice from fresh attacks. Besides those that appear in the return, forty-two slight cases occurred while the men continued at duty, thus making the total number of cases of primary syphilis seventy-two. In one case only was there sloughing; it occurred in hospital, and was attended with serious hæmorrhage. Bubo followed in eight cases, and five of these suppurated. In three cases only was there induration, and in all these secondary symptoms followed. The treatment consisted in applying solid nitrate of silver to the sores as soon as they were seen, whether they presented induration or not; water dressing and black wash were the only other local applications used, "excepting in some few cases where there was either difficulty in the cure or suspicious induration present, when the mercurial (calomel) bath, applied either locally or generally has been used, followed always by a speedy improvement, and generally by a rapid healing of the sores."

Of the ten cases of secondary syphilis, three occurred in men who had contracted the primary disease, and had also suffered from the secondary while in England; two men were entered twice on the list. The remaining four cases were the result of infection in China, one at Amoy, and three at Hong Kong. In seven there were rheumatic pains in the bones, increased at night, and accompanied with tenderness of the affected parts. In nine there was either a scaly or pustular eruption on the body or face; in three there was ulceration of the scrotum, scalp, or legs. Iodide of potassium was given to nearly all of them, and generally pushed to a considerable

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extent, when it almost always gave relief, for some time at least, to most of the symptoms. The mercurial vapour bath was also tried, and found most useful in cases of skin affections, such as ulcers and eruptions.

There were twenty-two cases of syphilis and four of gonorrhœa, all contracted at Hong Kong, where the vessel was permanently stationed.

In the Princess Royal there were sixty-three cases of primary syphilis, twenty-nine of secondary syphilis, and two of gonorrhœa. The secondary affections in this ship appear to have been very virulent and intractable. In one case it is stated where the eruption took the form of rupia, the man was covered with sores from head to foot, some of them very large, and in some places so close as even to coalesce. After being in hospital for some months he was invalided and sent home.

Diseases not classed.—Cancer proved fatal in the person of a boy of the Rattler, of a delicate strumous habit of body. It assumed the form of fungus hæmatodes. The following is the history of the case as given by the acting surgeon of the ship:—

"He was admitted to the sick-list on the 7th of April, complaining of pain over the inner surface of the head of the right tibia. There was neither redness nor swelling. Since joining the ship it is stated he had occasionally complained of pain in the same part, which was aggravated by his being somewhat knock-kneed. He stated, also, that in childhood he had been treated for an affection of the knee, and the marks of a seton were apparent over the part. He had also for a considerable time been under treatment for the same complaint while in the Boscawen. Rest and fomentation at first relieved the pain, but gradually a diffused swelling appeared in the soft parts, accompanied by aching pain in the tibia. There was free motion of the joint, which did not appear to be then implicated. There was no hereditary disposition to strumous or cancerous disease, it is said. The parts were painted with tincture of iodine, and perfect rest secured by the application of a padded splint. Iodide of potass was given for some time without any diminution of the size of the tumour, which assumed a livid hue, and latterly as it grew softer, and in one part even seemed to point, it presented the appearance of a chronic abscess connected with the bone. An exploratory needle introduced brought away only fluid florid blood; the general health became impaired from confinement to a cot. A very nutritious diet with an allowance of wine was prescribed. No change took place in the size of the tumour, but pain increased, producing considerable constitutional excitement, and requiring opiates to procure rest. On arrival of the ship at Singapore he was at once taken (on the 2nd of June) to the general hospital. In the hospital the tumour at first made little progress; it was treated by incisions, which only produced hæmorrhages. Three weeks after his arrival in hospital a very rapid increase of swelling and pain took place, involving marked constitutional

constitutional sympathy; the countenance assumed the characteristic appearances of malignant disease, and the tumour those of fungus hæmatodes. Through the ulcerated integument fungous protrusions appeared, from which occasional hæmorrhages took place. The disease rapidly spread in every direction, the knee-joint became involved, and on a consultation being held by the medical officers of the hospital and the vessels-of-war, the femoral glands were found to be implicated, and the superficial veins of the thigh in an inflamed condition; amputation, therefore, seemed to be contra-indicated. Abscesses formed in the pectoral muscles under the clavicles, giving rise to great discharges of pus, which resulted in extreme emaciation. The patient, under a very liberal allowance of stimulants, lingered on till the 21st of July, on the afternoon of which day he died."

Wounds and Injuries.—A man was killed by falling from aloft. The fourth, fifth, sixth, and seventh ribs were fractured about three inches and a half from their connection with the vertebræ, and driven into the right lung, lacerating it to the extent of six inches.

Fifteen men were drowned. Of these, nine fell overboard; one was washed overboard in a gale; one fell into the River Shanghai when in a state of intoxication, it is supposed; and another, under similar circumstances, fell off a pier into the sea and was drowned; one fell through the screw well into the sea, and was drowned; and two were found drowned.

One man committed suicide by cutting his throat.

The total number of deaths was seventy-seven, which is in the ratio of 18·9 per 1,000 of mean force, being a reduction compared with the preceding year equal to 4·3 per 1,000.

Invalided.—Ten persons were invalided for the sequelæ of fever; sixteen for diseases of the brain and nervous system; twenty-eight for diseases of the respiratory organs, twenty-three of whom were consumptive; thirteen for diseases of the heart and bloodvessels; thirty for diseases of the alimentary canal; thirteen for diseases of the liver; one for disease of the spleen; forty for diseases of the genito-urinary organs, two-thirds of whom were suffering from various forms of syphilis; twenty-six for rheumatism; two for diseases of the bones and joints; three for diseases of the special senses; twelve for diseases of the skin and cellular tissue; twenty-three for diseases not classed, twenty-one of whom were suffering from climatic cachexia; eight for wounds and injuries of various kinds; and six for hernia. The total number invalided was 231, which is in the ratio of 56·7 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 4·7 per 1,000.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	409	115·2	8	1·9	9	2·2
Intermittent Fever	133	37·4	2	·4	—	—
Small Pox	21	5·9			1	·2
Disease of the Brain	2	·5	—	—	—	—
Apoplexy	2	·5	1	·2	—	—
Epilepsy	5	1·4	2	·4	—	—
Paralysis	4	1·1	2	·4	—	—
Insanity	3	·8	5	1·2	—	—
Delirium Tremens	18	5·	4	·9	3	·7
Neuralgia	14	3·9	—	—	—	—
Vertigo	2	·5	1	·2	—	—
Insolation	21	5·9	1	·2	4	·9
Inflammation of the Lungs and Pleura	58	16·3	5	1·2	2	·4
Phthisis and Hæmoptysis	31	8·7	23	5·6	10	2·4
Influenza and Catarrh	290	81·6	—	—	—	—
Cynanche	76	21·4	—	—	—	—
Disease of the Heart, Functional and Organic	34	9·5	12	2·9	1	·2
Hæmorrhoids	12	3·3	—	—	—	—
Varix	1	·2	1	·2	—	—
Aneurism	2	·5			1	·2
Disease of the Stomach and Bowels	11	3·			3	·7
Dysentery	66	18·5	15	3·6	16	3·9
Diarrhœa	504	141·9	15	3·6	—	—
Constipation and Colic	96	27·	—	—	—	—
Disease of the Liver	30	8·4	13	3·1	3	·7
Jaundice	15	4·2	—	—	—	—
Splenitis			1	·2	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	5	1·4	3	·7	1	·2
Syphilis, Primary	333	93·8	—	—	—	—
Syphilis, Secondary	128	36·	29	7·1	2	·4
Gonorrhœa	94	26·4	1	·2	—	—
Orchitis	121	34·	2	·4	—	—
Stricture	15	4·2	3	·7	—	—
Incontinence of Urine, &c.	5	1·4	2	·4	—	—
Rheumatism	296	83·3	26	6·3	—	—
Gout	8	2·2	—	—	—	—
Disease of the Bones and Joints	23	6·4	2	·4	—	—
Inflammation of the Eyes	45	12·6	1	·2	—	—
Amaurosis and Cataract	2	·5	1	·2	—	—
Otitis and Deafness	9	2·5	1	·2	—	—
Erysipelas	13	3·6	—	—	1	·2
Scrofula	7	1·9	—	—	—	—
Bubo (*Symp.*)	91	25·6	—	—	—	—
Phlegmon and Abscess	676	190·4	3	·7	—	—
Ulcer	348	98·	9	2·2	—	—
Psora	1	·2	—	—	—	—
Eruptions, &c.	26	7·3	—	—	—	—
Dyspepsia and Debility	249	70·1	21	5·1	—	—
Scurvy	1	·2	—	—	—	—
Dropsy	10	2·8	2	·4	2	·4
Worms	17	4·7	—	—	—	—
Headache	26	7·3	—	—	—	—
Cancer (Medullary)	1	·2	—	—	1	·2
Wounds and Injuries	752	211·8	8	1·9	1	·2
Burns and Scalds	46	12·9	—	—	—	—
Hernia	9	2·5	6	1·4	—	—
Drowned	—	—	—	—	15	3·6
Poison	3	·8	—	—	—	—
Suicide	—	—	—	—	1	·2
Submersion	1	·2	—	—	—	—
TOTAL	5,221	1470·7	231	56·7	77	18·9

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE, and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY,	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	3,256	1,178	4,434	12·1	3·4
Intermittent Fever	962	35	997	2·7	·7
Small Pox	151	178	329	·9	·2
Measles	-	24	24	—	—
Disease of the Brain	14	29	43	·1	—
Apoplexy	5	121	126	·3	—
Epilepsy	23	64	87	·2	—
Paralysis	64	35	99	·2	—
Insanity	44	104	148	·4	·1
Delirium Tremens	112	40	152	·4	·1
Neuralgia	150	-	150	·4	·1
Vertigo	2	15	17	—	—
Insolation	74	-	74	·2	—
Inflammation of the Lungs and Pleura	1,173	297	1,470	4·	1·1
Phthisis and Hæmoptysis	754	574	1,328	3·6	1·
Influenza and Catarrh	1,755	-	1,755	4·8	1·3
Cynanche	548	38	586	1·6	·4
Disease of the Heart, Functional and Organic	524	498	1,022	2·8	·7
Hæmorrhoids	212	25	237	·6	·1
Varix	11	86	97	·2	—
Aneurism	27	19	46	·1	—
Disease of the Stomach and Bowels	257	60	317	·8	·2
Dysentery	1,084	843	1,927	5·2	1·4
Diarrhœa	3,480	1,036	4,516	12·3	3·4
Constipation and Colic	433	13	446	1·2	·3
Disease of the Liver	388	433	821	2·2	·6
Jaundice	228	29	257	·7	·1
Splenitis	17	-	17	—	—

Table, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	87	97	184	·5	·1
Syphilis, Primary	8,272	3,797	12,069	33·	9·2
Syphilis, Secondary	3,026	424	3,450	9·4	2·6
Gonorrhœa	1,402	182	1,584	4·3	1·2
Orchitis	1,787	514	2,301	6·3	1·7
Stricture	200	359	559	1·5	·4
Incontinence of Urine, &c.	110	30	140	·3	—
Rheumatism	4,717	2,080	6,797	18·6	5·2
Gout	52	26	78	·2	—
Disease of the Bones and Joints	354	137	491	1·3	·3
Inflammation of the Eyes	684	83	767	2·1	·5
Amaurosis and Cataract	1	26	27	—	—
Otitis and Deafness	40	20	60	·1	—
Erysipelas	160	-	160	·4	·1
Scrofula	48	32	80	·2	—
Bubo (*Symp.*)	2,182	243	2,425	6·6	1·8
Phlegmon and Abscess	5,333	291	5,624	15·4	4·3
Ulcer	6,345	862	7,207	19·7	5·5
Psora	4	-	4	—	—
Eruptions, &c.	227	79	306	·8	·2
Cancer	57	59	116	·3	—
Dyspepsia and Debility	1,908	871	2,779	7·6	2·1
Scurvy	1	66	67	·1	—
Dropsy	158	83	241	·6	·1
Worms	95	-	95	·2	—
Headache	167	70	237	·6	·1
Wounds and Injuries	8,534	1,052	9,586	26·2	7·3
Burns and Scalds	591	87	678	1·8	·5
Hernia	143	23	166	·4	·1
Poison	2	3	5	—	—
Submersion	4	-	4	—	—
TOTAL	62,439	17,370	79,809	218·6	61·5

TABLE, No. 3.

SHOWING the Number INVALIDED from each Ship

CAUSE of INVALIDING.	Adventure.	Algerine.	Argus.	Barrosa.	Basilisk.	Coquette.	Cormorant.	Gunboats.	Hesper.	Icarus.
Continued and Remittent Fever	–	–	–	–	–	–	–	3	–	–
Intermittent Fever	–	–	–	–	–	–	–	1	–	–
Insanity	1	–	–	–	–	–	–	1	–	–
Apoplexy	–	–	–	–	–	–	1	–	–	–
Epilepsy	–	–	–	–	–	–	1	1	–	–
Paralysis	–	–	–	–	–	–	–	–	–	–
Delirium Tremens	–	–	–	–	–	–	–	1	–	–
Insolation	–	–	–	–	–	–	–	–	–	–
Vertigo	–	–	–	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura	2	–	–	–	–	–	–	1	1	–
Phthisis and Hæmoptysis	1	–	1	1	1	–	–	2	–	–
Disease of the Heart, Functional and Organic	1	–	–	1	–	–	–	1	–	–
Varix	–	1	–	–	–	–	–	–	–	–
Dysentery	–	–	–	–	–	–	–	7	1	1
Diarrhœa	2	1	–	–	–	–	–	4	–	–
Disease of the Liver	3	1	–	–	–	2	–	3	–	–
Splenitis	–	–	–	–	–	–	–	–	–	1
Inflammation of the Kidneys and Bladder	–	–	–	–	–	–	–	1	–	–
Syphilis, Secondary	3	1	–	5	–	–	–	6	–	–
Gonorrhœa	–	–	–	–	–	–	–	1	–	–
Orchitis	–	–	–	1	–	1	–	–	–	–
Stricture	–	–	–	–	1	–	–	–	–	–
Incontinence of Urine, &c.	–	1	–	–	–	–	–	–	–	–
Rheumatism	3	–	4	2	1	–	–	7	–	–
Diseases of the Bones and Joints	–	–	–	–	1	–	–	–	1	–
Inflammation of the Eyes	–	–	–	–	–	–	–	1	–	–
Amaurosis and Cataract	–	–	–	–	–	–	–	–	–	–
Otitis and Deafness	–	–	–	–	–	–	–	–	–	–
Abscess	–	–	–	–	–	–	–	–	–	–
Ulcer	1	–	–	–	–	–	–	–	–	–
Dyspepsia and Debility	1	–	1	–	–	1	–	5	1	1
Ascites	–	–	–	–	–	–	–	–	–	–
Wounds	–	1	–	–	–	–	–	–	–	–
Hernia	–	1	–	–	–	1	–	1	–	–
TOTAL	18	7	6	10	4	5	2	47	4	3

TABLE, No. 3.

employed on the CHINA STATION.

Leopard.	Manilla.	Osprey.	Pearl.	Pelorus.	Pergeus.	Princess Charlotte.	Princess Royal.	Rattler.	Rifleman.	Salamis.	Scylla.	Serpent.	Slaney.	TOTAL.
–	–	3	–	–	2	–	–	–	–	–	–	–	–	8
–	–	–	1	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	1	–	–	–	1	–	–	–	1	5
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	1	1	–	–	–	–	–	–	–	–	2
–	–	2	–	–	–	1	–	–	–	–	–	–	–	4
–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
–	–	–	–	1	–	–	–	–	–	–	–	–	–	5
–	1	–	–	–	2	1	10	1	–	–	1	1	–	23
–	–	2	2	1	2	1	–	1	–	–	–	–	–	12
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	2	–	2	–	–	–	–	1	–	–	–	1	15
–	–	1	–	–	6	–	–	1	–	–	–	–	–	15
–	–	–	–	–	–	3	–	–	–	1	–	–	–	13
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	1	–	–	–	–	–	–	–	–	–	a1	–	–	3
2	–	2	–	–	2	–	5	1	–	–	2	–	–	29
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	1	–	1	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	1	–	–	–	–	–	2
2	–	–	–	2	2	2	1	–	–	–	–	–	–	26
–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
1	–	–	1	–	–	–	–	1	–	–	–	–	–	3
1	–	–	–	3	–	1	1	2	–	–	–	–	–	9
–	2	–	–	–	–	4	1	2	1	–	1	–	–	21
–	–	–	–	–	–	–	2	–	–	–	–	–	–	2
–	–	–	2	–	1	–	3	1	–	–	–	–	–	8
–	–	2	–	–	–	–	–	–	–	–	1	–	–	6
6	4	15	6	12	19	13	24	12	3	1	6	2	2	231

a Hæmaturia.

TABLE, No. 4. - - - - - - - -

SHOWING the Number of DEATHS in each - - - -

CAUSE OF DEATH.	Adventure.	Algerine.	Argus.	Barrosa.	Basilisk.	Coquette.	Cormorant.	Gunboats.
Continued and Remittent Fever -	–	–	–	–	2	1	–	–
Small Pox - - - - -	–	–	–	–	–	–	–	–
Delirium Tremens - - -	–	–	–	–	–	–	–	–
Insolation - - - - -	–	2	–	–	–	–	–	1
Inflammation of the Lungs and Pleura - - - - -	–	–	1	–	–	–	–	–
Phthisis - - - - - -	–	–	–	1	–	–	1	1
Disease of the Heart - - -	–	–	–	–	–	–	–	–
Aneurism - - - - -	–	–	–	–	1	–	–	–
Peritonitis - - - - -	1	–	–	–	–	–	–	–
Dysentery - - - - -	1	1	–	–	–	–	–	5
Disease of the Liver - - -	–	–	–	–	1	–	–	1
Nephritis - - - - -	–	–	–	–	–	–	–	–
Syphilis (Secondary) - - -	–	–	–	–	–	–	–	–
Erysipelas - - - - -	–	–	–	–	–	–	–	–
Ascites - - - - -	–	–	–	–	–	–	–	1
Cancer (Medullary) - - -	–	–	–	–	–	–	–	–
Wounds and Injuries - - -	–	–	–	1	–	–	–	–
Drowned - - - - -	1	–	–	1	–	2	1	2
Suicide - - - - -	–	–	–	–	–	–	–	*a* 1
TOTAL - - -	3	3	1	3	4	3	2	12

a By cutting his throat.

TABLE, No. 4.

Ship employed on the CHINA STATION.

Hesper.	Icarus.	Leopard.	Manilla.	Osprey.	Pearl.	Pelorus.	Perseus.	Princess Charlotte.	Princess Royal.	Rattler.	Rifleman.	Salamis.	Serpent.	Swallow.	TOTAL.
–	–	–	–	–	–	1	–	–	3	–	1	–	–	1	9
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
–	–	–	–	–	–	–	–	–	1	1	1	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	4
–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	2
1	1	–	1	–	–	1	–	1	2	–	–	–	–	–	10
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	3
–	1	1	1	–	–	4	–	–	1	–	–	–	–	1	16
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	*b* 1	–	–	1
–	–	1	–	–	–	–	–	–	1	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	1	–	–	–	–	2	1	–	2	–	–	1	–	–	15
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
2	3	2	2	1	1	8	1	1	12	4	4	2	1	2	77

b Bright's disease and uræmia.

TABLE, No. 5. - - - - - - - - -

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Cases; Daily, in each Ship; and the

C. Commissioned. P. O. Paid off.

Rate, &c.	NAMES OF SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.
Second Rate -	Princess Royal - -	Devonport -	15 Feb. 1864	73	3,129	S. 400
Fifth Rate - -	Leopard - - P. O.	Devonport -	11 Oct. 1862	18	1,406	P. 560
Sixth Rate - -	Barrosa - - - -	Sheerness -	26 Sept. 1862	21	1,700	S. 400
	Pearl - - - C.	Portsmouth	5 May 1866	17	1,469	S. 400
	Pelorus - - - "	Devonport -	11 Sept. 1863	21	1,464	S. 400
	Scylla - - - "	Sheerness -	9 Sept. 1863	21	1,467	S. 400
Sloop - -	Argus - - - -	Hong Kong	23 Jan. 1866	6	981	P. 300
	Basilisk - - - S.C.	Sheerness -	16 Sept. 1865	6	1,031	P. 400
	Icarus - - - C.	Sheerness -	28 Feb. 1866	3	580	S. 150
	Perseus - - - -	Hong Kong	23 Jan. 1866	15	955	S. 200
	Rattler - - - -	Hong Kong	19 Jan. 1866	17	952	S. 200
Gun Vessel - -	Algerine - - -	Shanghae -	8 Nov. 1864	3	299	S. 80
	Coquette - - S. C.	Portsmouth	7 April 1862	4	677	S. 200
	Cormorant - - -	Hong Kong	23 Jan. 1866	4	695	S. 200
	Leven - - - P. O.	Hong Kong	2 Dec. 1862	3	300	S. 80
	Osprey - - - -	Woolwich -	3 Jan. 1863	4	682	S. 200
	Serpent - - - -	Sheerness -	18 April 1865	4	695	S. 200
	Slaney - - - -	Shanghae -	8 Nov. 1864	3	301	S. 80
Steam Vessel -	Manilla - - - -	Shanghae -	1 Feb. 1866	-	295	S. 70
	Salamis - - - C.	Portsmouth	1 Jan. 1866	2	835	P. 250
Gun Boat - -	Insolent - - - -	Chefoo -	22 Nov. 1864	2	233	S. 60
Surveying Vessel -	Rifleman - - -	Hong Kong	31 Mar. 1866	4	486	S. 100
	Swallow - - - P. O.	Sheerness -	21 Nov. 1861	5	486	S. 60
Troop Ship - -	Adventure - - -	Woolwich -	17 April 1862	2	1,794	S. 400
Store Ship - -	Hesper - - - -	Hong Kong	23 Jan. 1866	2	808	S. 80
Receiving Ship -	Princess Charlotte - D.	Hong Kong	1 Jan. 1866	12	2,443	-

- - - - - - - - - TABLE, No. 5.

the Total Number of Days' Sickness on Board; the Average Number of Men Sick Number discharged to Hospital.

D. Returns defective. S. C. Station changed.

Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
Year - -	780	780	482	10,290	28·1	36·	56
1 Jan. to 30 June	310	155	86	2,594	7·1	45·8	2
Year - -	255	255	378	4,601	12·6	49·4	8
1 Oct. to 31 Dec.	235	60	93	932	2·5	41·6	7
Year - -	260	260	234	4,123	11·2	43·	21
Year - -	270	270	205	3,252	8·9	32·5	14
Year - -	170	170	353	3,307	9·	52·9	26
1 April to 31 Dec.	170	130	278	2,195	6·	46·1	9
1 Oct. to 31 Dec.	125	30	41	404	1·1	36·6	7
Year - -	165	165	352	4,433	12·1	73·3	49
Year - -	180	180	295	2,912	7·9	43·8	25
Year - -	50	50	102	1,071	2·9	58·	10
1 Jan. to 30 Sept.	90	70	223	1,797	4·9	70·	5
Year - -	95	95	137	1,515	4·1	43·1	9
1 Jan. to 22 Jan.	45	5	7	59	·1	20·	—
Year - -	85	85	251	1,557	4·2	49·4	34
Year - -	95	95	222	2,367	6·4	67·3	25
Year - -	50	50	98	757	2·	40·	5
Year - -	50	50	115	1,441	3·9	78·	11
1 July to 31 Dec.	70	35	90	721	1·9	53·5	7
Year - -	40	40	51	519	1·4	35·	—
Year - -	90	90	180	1,700	4·6	51·1	9
1 Jan. to 30 June	90	45	69	1,309	3·5	77·7	6
Year - -	165	165	534	5,107	13·9	84·2	20
Year - -	55	55	152	1,554	4·2	76·3	14
Year - -	165	165	193	2,014	5·5	33·3	22

TABLE, No. 6.

SHOWING the Number of CASES of all DISEASES and INJURIES

DISEASE OR INJURY.	Adventure.	Algerine.	Argus.	Barrosa.	Basilisk.	Coquette.	Cormorant.	Hesper.	Icarus.	Insolent.	Leopard.	Leven.
Continued and Remittent Fever	26	2	–	16	34	46	9	22	5	5	1	
Intermittent Fever	24	13	6	2	3	2	1	3	–	1	1	
Small Pox	1	–	–	3	–	–	–	1	–	–	–	
Disease of the Brain	–	–	1	–	–	–	–	–	–	–	–	
Apoplexy	–	–	–	–	–	–	1	–	–	–	–	
Epilepsy	1	–	–	–	–	–	1	–	–	–	–	
Paralysis	–	–	–	–	–	–	–	–	–	–	–	
Insanity	1	–	–	–	–	–	–	–	–	–	–	
Delirium Tremens	1	–	1	–	–	–	–	–	–	–	–	
Neuralgia	3	–	1	2	1	–	1	–	–	–	–	
Insolation	3	2	–	–	13	–	–	–	–	–	–	
Vertigo	–	–	1	–	–	–	–	–	–	–	–	
Inflammation of the Lungs and Pleura	10	–	5	–	–	2	3	–	1	–	2	
Phthisis and Hæmoptysis	3	–	3	1	2	–	2	1	–	–	2	
Cynanche	8	–	5	–	3	2	1	–	1	–	2	1
Influenza and Catarrh	42	4	19	53	16	2	3	5	5	2	3	
Disease of the Heart, Functional and Organic	6	–	2	2	1	–	–	–	1	–	–	
Aneurism	–	–	–	–	1	–	–	–	–	–	–	
Hæmorrhoids	1	2	1	1	–	–	–	1	–	1	–	
Varix	–	1	–	–	–	–	–	–	–	–	–	
Inflammation of the Stomach and Bowels	1	–	–	1	–	2	–	–	–	–	–	
Dysentery	4	2	–	1	1	–	–	16	2	–	–	
Diarrhœa	121	9	36	41	36	8	11	17	1	1	1	
Constipation and Colic	14	13	3	11	–	10	–	4	–	–	–	
Inflammation of the Liver	3	1	–	–	1	3	–	3	–	1	–	
Jaundice	1	–	–	–	1	1	–	–	1	–	–	
Inflammation of the Bladder and Kidneys	–	1	–	–	–	–	–	–	–	–	–	
Syphilis, Primary	24	3	36	14	9	4	27	–	1	4	5	
Do. Secondary	18	–	–	23	1	–	4	6	–	–	–	
Gonorrhœa	10	1	4	10	4	3	6	2	1	7	–	
Orchitis	9	1	7	10	7	8	2	1	–	3	7	
Stricture of the Urethra	2	–	1	–	2	1	–	–	–	–	–	
Incontinence of Urine, &c.	–	1	–	–	–	–	–	–	–	1	–	
Rheumatism	29	4	31	34	15	8	8	6	1	4	14	1
Gout	3	–	–	–	2	–	–	–	–	–	–	
Disease of the Bones and Joints	1	1	4	–	–	2	1	–	1	–	2	
Inflammation of the Eyes	1	1	–	6	1	2	2	–	–	–	3	
Amaurosis and Cataract	–	–	–	–	–	–	–	–	–	–	–	
Otitis and Deafness	2	–	1	1	–	–	1	–	–	–	–	
Erysipelas	–	–	2	–	–	1	–	–	–	–	–	
Scrofula	–	–	–	–	–	–	–	2	–	1	–	
Bubo (*Symp.*)	7	5	6	4	4	2	6	–	–	1	4	
Phlegmon and Abscess	41	12	60	49	41	23	19	11	11	4	10	2
Ulcer	8	8	34	10	22	11	8	10	1	1	7	1
Psora	–	–	–	–	–	–	–	–	–	1	–	
Eruptions, &c.	4	–	3	1	1	1	2	1	–	–	–	
Dyspepsia and Debility	28	2	9	27	11	38	2	18	–	5	–	
Scurvy	–	–	–	–	–	–	–	–	–	–	–	
Cancer (Medullary)	–	–	–	–	–	–	–	–	–	–	–	
Headache, &c.	2	–	–	–	–	–	–	–	–	–	–	
Dropsy	–	–	1	–	1	–	–	–	–	–	–	
Worms	–	–	*b* 1	–	–	2	–	–	–	–	–	
Wounds and Injuries	67	6	68	54	41	37	16	20	8	8	22	2
Burns and Scalds	2	3	1	1	3	1	–	1	–	–	–	
Hernia	–	4	–	–	–	1	–	–	–	–	–	
Submersion	–	–	–	–	–	–	–	–	–	–	–	
Poisoning	*a* 2	–	–	–	–	–	–	1	–	–	–	
TOTAL	534	102	353	378	278	223	137	152	41	51	86	7

a By Fish. *b* Tænia. *c* Ascaris Lumbricoides.

TABLE, No. 6.

in each Ship employed on the CHINA STATION.

Manilla.	Osprey.	Pearl.	Pelorus.	Perseus.	Princess Charlotte.	Princess Royal.	Rattler.	Rifleman.	Salamis.	Scylla.	Serpent.	Slaney.	Swallow.	TOTAL.
8	34	–	5	55	29	15	22	27	9	3	18	14	4	409
1	4	–	19	7	3	14	6	15	–	–	–	8	–	133
1	–	–	–	–	–	5	1	–	1	7	–	–	–	21
–	–	–	–	–	1	–	–	–	–	–	1	–	–	2
–	2	–	1	–	–	2	1	–	–	–	–	–	–	5
–	–	–	–	1	–	–	–	–	–	–	–	1	–	3
–	2	–	1	1	2	7	3	2	1	–	1	1	1	18
–	–	–	1	–	–	–	–	–	–	–	2	–	–	21
2	2	–	1	1	2	14	–	1	1	4	5	–	2	58
1	–	–	–	1	2	10	2	–	–	–	1	–	–	31
–	4	3	5	8	1	e 11	4	6	–	4	2	1	4	76
14	30	–	4	10	3	4	4	10	1	23	29	2	2	290
1	1	2	1	7	1	4	4	–	–	–	–	–	1	34
–	–	–	1	–	–	1	–	–	–	–	–	–	–	2
–	–	–	–	–	–	2	–	–	1	–	1	–	–	12
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	1	–	–	–	3	–	1	–	1	1	–	–	11
3	6	–	5	3	4	7	–	4	–	2	–	2	4	66
14	35	2	5	46	22	9	23	24	5	8	13	8	8	504
–	–	–	–	1	4	2	9	8	7	4	2	4	–	96
–	2	–	6	–	6	–	1	1	2	–	–	–	–	30
1	–	1	1	–	1	5	–	–	–	1	–	–	1	15
–	–	–	–	–	d 1	–	–	–	1	1	–	–	1	5
10	3	1	16	30	22	63	15	3	4	20	14	–	5	333
–	14	–	4	10	–	29	7	–	–	4	7	–	1	128
4	–	–	5	11	4	2	2	5	1	4	4	1	3	94
3	11	1	6	3	9	10	5	3	1	10	2	–	2	121
1	–	–	1	–	–	5	1	–	–	1	–	–	–	15
–	–	–	1	–	1	–	1	–	–	–	–	–	–	5
3	6	4	17	20	18	15	10	6	7	17	6	1	11	296
–	1	–	–	–	2	1	1	1	–	2	–	4	–	8
2	2	1	5	6	–	4	1	1	–	5	2	–	–	23
–	–	–	1	–	1	1	–	–	–	–	–	–	–	45
–	–	–	–	–	1	–	–	–	1	–	1	–	–	2
–	–	1	3	–	–	4	1	1	–	4	–	–	–	9
–	3	1	8	11	–	15	3	2	1	6	1	1	–	13
13	37	43	32	26	14	40	56	17	16	32	48	12	7	7
4	10	4	35	28	9	65	22	10	10	6	14	7	3	676
–	1	3	1	1	–	1	1	1	1	1	2	–	–	348
13	10	4	6	3	15	1	18	10	3	3	13	6	4	1
–	1	–	–	–	–	–	–	–	–	–	–	–	–	26
7	–	–	–	–	–	–	1	–	–	–	–	–	–	249
–	–	–	–	–	–	–	4	1	1	1	4	2	–	1
2	b 1	–	–	2	c 1	3	–	2	1	b 2	b 1	2	2	1
7	27	18	34	53	5	102	57	3	–	28	25	20	2	26
–	1	2	3	5	4	6	6	11	14	–	2	1	1	17
–	1	1	–	–	1	–	–	3	–	1	–	–	–	752
–	–	–	–	–	–	–	1	–	–	–	–	–	–	46
–	–	–	–	–	–	–	–	–	–	–	–	–	–	9
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
115	251	93	234	352	193	482	295	180	90	205	222	98	69	3
														5,221

d Spermatorrhœa.

e 1 Bronchocele.

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Australian Station.

SEVEN vessels were employed on the Australian Station during the year 1866, viz., one of the fifth-rate; three sixth-rates; two sloops; and one gun-vessel. There was also a small detachment of Marines, at Somerset, Cape York, Northern Australia. The mean force corrected for time was 1,065, and the total number of cases of disease and injury entered on the sick-list 1596, which is in the ratio of 1498·5 per 1,000 of mean force, being an increase as compared with the preceding year.

The daily loss of service from febrile diseases was in the ratio of ·4 per 1,000 of mean force; of diseases of the brain and nervous system, ·3; of the organs of respiration, 6·; of the heart and bloodvessels, ·5; of the alimentary canal, 1·5; of the genito-urinary organs, 5·; from rheumatism, 4·8; diseases of the bones and joints, ·2; of the special senses, ·8; of the skin and cellular tissue, 9·3; from dyspepsia and debility, 1·8; and from wounds and injuries of various kinds, 8·3. The average number of men sick daily was 46·6, which is in the ratio of 43·7 per 1,000 of mean force, being below the daily sick-rate of the preceding year.

Fevers.—Twenty-four cases of primary fever and four of ague were entered on the sick-list during the year, but no loss to the service consequent upon them occurred, either by invaliding or death. The average duration of each case of primary fever on the sick-list was between nine and ten days, and of each case of ague four days.

Continued and Remittent Fever.—There were five cases of primary fever in the Brisk, four of which are classed under the head of febricula. As the average duration of each of these cases was thirteen days, they could hardly be called ephemeral. The remaining case was of the enteric type. The subject of it was a boy who had been under treatment or general febrile symptoms for a few days, when diarrhœa set

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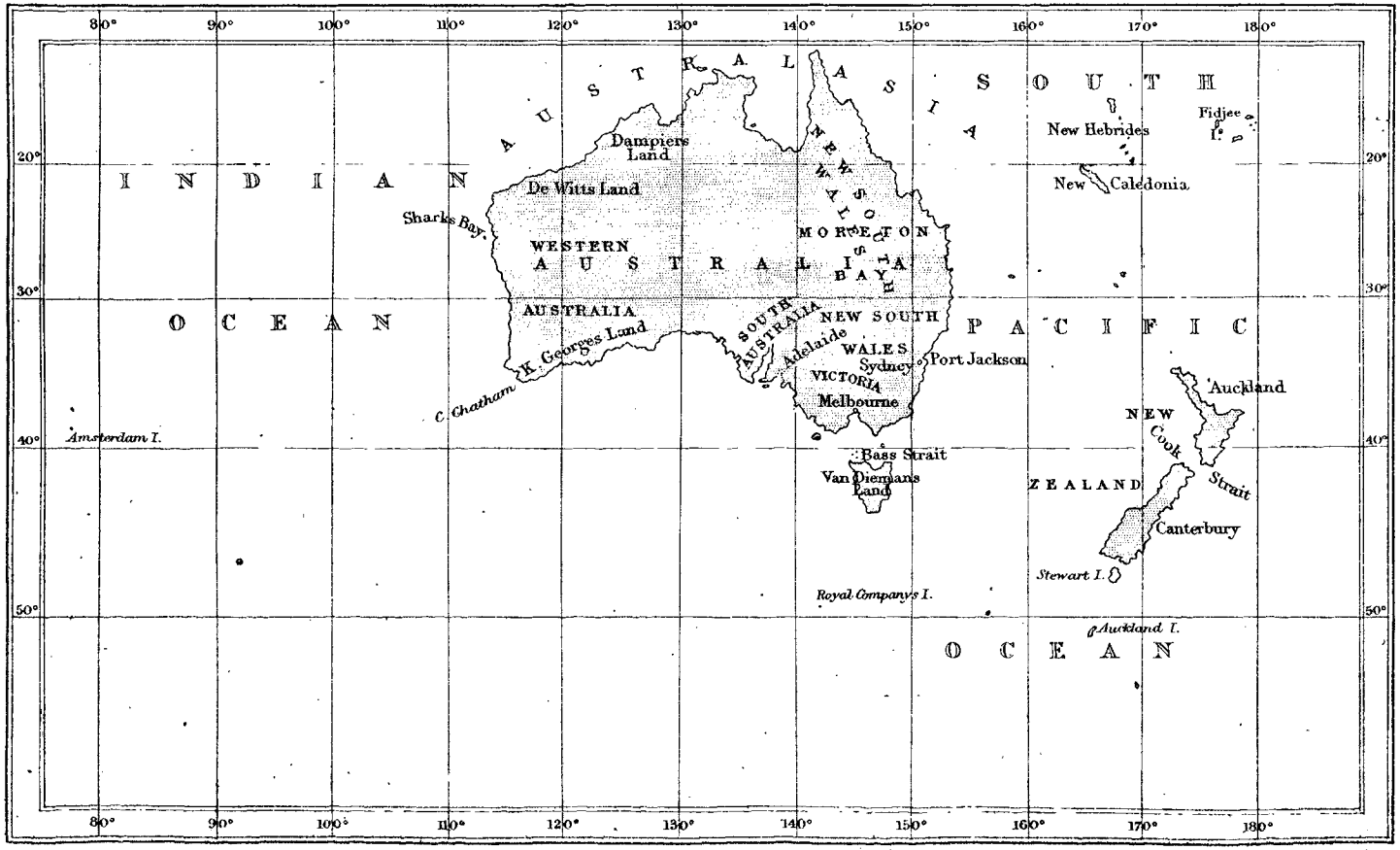

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set in, with tenderness on pressure over the right iliac fossa, and a slightly tympanitic state of the abdomen; there were also several rose-coloured spots over the surface of the thorax and abdomen. In this condition the boy was sent to hospital, where he made a good recovery. No information is given as to the origin of the disease, but the vessel was at Auckland at the time, and it was probably contracted on shore there.

There were six cases of primary fever in the Curaçoa. Five of these are classed as febricula, the average duration of each being about six days; the sixth case was more protracted, being twenty-eight days on the sick-list. No information whatever is given in connection with any of these cases.

In the Eclipse there were thirteen cases of primary fever, but they do not appear to have been of much importance. During the early part of the year the vessel was much employed on the coast of New Zealand amongst the native tribes, who appear to have been suffering much from a very fatal form of fever. The surgeon* of the Eclipse says:—

"In the early months of the past year the ship was employed taking the Govenor of New Zealand about to many small places on the east and west coasts of the northern island, inhabited almost exclusively by the native race, who recently had been in rebellion, but were now willing to make their submission to the Government. Several persons on board, in the Governor's suite, were intimately acquainted with all the native settlements visited, and described them as being, only a few years back, places of substantial comfort and comparative prosperity, the natives being numerous, well clothed, and well fed. On our visiting those same places, all this was completely changed. Profitable labour and useful industry had for some time been completely put aside for war and rebellion. It may be said that they had staked every thing on the result, and having been beaten all was lost. Great numbers had already perished, and the condition of those that remained was truly deplorable. They were without clothes, suitable food, or proper shelter. Fever that always follows in the train of famine was raging amongst them. I visited as many as twenty cases in one day. The mortality was something truly awful. I have heard several white settlers compute it at ninety-five per cent. of those attacked. All hope and spirit seemed to have died out of the crushed and subjugated race, and that, added to their destitute condition, was causing them to become rapidly extinct. In some few places at which we called all the inhabitants had died out; in some few others where, a few years ago, there were some

* Dr. S. Armstrong Willis.

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some hundreds, they were reduced to numbers varying from twelve to twenty. There was a great uniformity in the symptoms and appearances generally of the cases of fever. No organ in particular suffered, but all the cases alike indicated extreme weakness and debility, and all needed the most nourishing and supporting regimen. We were constantly among the natives from the beginning of March until the end of May."

Diseases of the Brain and Nervous System.—A fatal case of disease of the brain, apparently of syphilitic origin, occurred in the person of a marine of the Curaçoa. He had been frequently under treatment for secondary syphilis in various forms, and in the month of April had a paralytic seizure, from which, however, after being under treatment for about a month, he so far recovered as to be enabled to return to light duty. On the 13th of August he presented himself complaining of severe headache with nausea and vomiting. The headache he stated had lasted for two or three days. This symptom was somewhat alleviated on the following day, but it recurred with great violence, and the nausea and vomiting were constant. Nothing could be retained on the stomach. There was no heat of skin, nor increased frequency of pulse. On the evening of the 18th the pulse became very slow and intermittent, coma set in, and he gradually sank and died. The following report of the post-mortem examination of the body is by the surgeon* of the ship:—

"Autopsy twelve hours after death showed the dura mater to be more vascular than usual, and in attempting to remove it, in order to examine the brain, it was found to be adherent along the middle and posterior right lateral lobes. In the posterior lobe were two tubercular deposits, placed in close proximity, the size of an ordinary walnut, and so hard as to cut almost like cartilage. The brain surrounding these masses was softened, and the grey matter could scarcely be recognised. No further examination was made."

Five cases of insolation were under treatment in the squadron. Four of these occurred in the Salamander, which was employed between Sydney and Cape York, and one in a marine of the detachment stationed at Somerset, Cape York. No information is given in connection with the former cases, but that which occurred in the marine appears to have been of great severity, and ultimately necessitated his being invalided.

* Surgeon R. Picken.

valided. He had been doing duty as gardener from the time the detachment landed in 1864, and worked in a close confined situation, where the prevailing winds could not penetrate with full force. He was in the habit of wearing at all seasons a heavy working dress made of blanket material, although repeatedly warned of the danger he was incurring. On the 5th of July during calm and oppressive weather he suddenly fell down, but did not lose consciousness, and recovered in a short time. Slight headache only, ensued for a time, but this increased much in severity, and compelled him to seek medical assistance. He had had a previous attack of a similar nature in October 1865, since which he had been more or less subject to headache and vertigo. On presenting himself his face was pallid, the eyes injected, and the tongue furred. The pulse was 98, sharp; the skin hot and moist, and the bowels confined. He stated that he was very restless at night. Under the treatment to which he was subjected his symptoms were at first relieved, but they recurred in paroxysms, and upon the whole the case progressed very unsatisfactorily. The paroxysms were always accompanied by temporary loss of vision, when he said something dark came over his eyes, and he could see nothing for a few seconds at a time. Pain was chiefly confined to the forehead and temples, and was sometimes felt acutely in the eyes, and in the situation of the anterior cerebral lobes. He became much emaciated, and so weak as to be almost helpless, and looked and even acted like an imbecile. He was so intolerant of solar heat that on the least exposure, even in mild weather, he became sick and giddy. Under these circumstances, he was invalided, as a longer continuance at Somerset was likely to be attended with danger to his life.

Four cases of delirium tremens occurred in the squadron. One of these was in the person of a commissioned officer, and three in private marines.

Diseases of the Organs of Respiration.—There was a very considerable increase in the ratio of cases of disease under this head as compared with the preceding year. Two hundred and eighty-one cases of various forms of disease were under treatment, of which, one of broncho-pneumonia, one of chronic bronchitis, three of phthisis, and one of diphtheria, proved fatal.

The case of diphtheria was one of unusual rapidity. It occurred in the person of a boy of the Curaçoa, who presented

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himself on the 9th of June with slight feverish symptoms, and an enlarged right tonsil; the surrounding parts, generally, were inflamed, but there was no ulceration. On the following morning both tonsils were found to be enlarged and dotted with exudation; tincture of the sesquichloride of iron was applied, but in the afternoon constant and violent coughing set in, accompanied with profuse salivary expectoration. The pulse was 126, he breathed freely although troubled with hiccough, the heart's action and sounds were normal, and he could take a full inspiration without pain. The temperature of the surface was rather increased. He began to sink in the afternoon, and became insensible shortly after 4 p.m. At 10 p.m. he expired. On post-mortem examination of the body, the mucous membrane of the larynx was found to be somewhat œdematous, intensely congested and inflamed. The inflammation extended to the bifurcation of the trachea. There was no false membrane. Both lungs were gorged with blood, more especially the right, the external surface of each being of a bluish colour. On dividing their texture, the cut surface presented a hepatized appearance. Air, however, permeated both lungs freely, and detached portions floated in water.

There would appear to have been a decided tendency to diphtheritic sore-throat amongst the ship's company of the Curaçoa during nearly the whole period of her commission. The surgeon says :—

"The cases of cynanche are numerous as contrasted with last year's return, the symptoms being very similar, the majority of the cases resembling a mild form of diphtheria, which has been so prevalent in this ship, I may almost say, during the commission. There was at first slight pyrexia with inflamed tonsils, ulceration generally on the second day, appearing as a small white speck. This usually spread for two or more days, and presented a yellow slough, on the separation of which, a healthy granulating surface became apparent. In many the symptoms were mild and caused little inconvenience, in others deglutition was very difficult. The application of tinctura ferri muriatis to the ulcer daily, and an aperient as required, with a simple saline diaphoretic mixture, generally comprised all that was requisite."

It will be seen by reference to the statistical report of the Health of the Navy for 1864, that a fatal case of this disease occurred in the Curaçoa, and that diphtheria was rather prevalent in Sydney, where the vessel was then lying.

Influenza prevailed in an epidemic form in Sydney, and extended to the crew of the Eclipse, which was lying there at the

the time. It ran rapidly through the ship's company, so that very few escaped, although only fourteen cases were of such severity as to necessitate their being placed on the sick-list. Great debility was the most marked symptom of the epidemic, and the early administration of quinine was found to be the best treatment. The surgeon* of the Brisk, referring to the diseases to which the Samoans and natives of the New Hebrides group are subject, says:—

"Influenza is a new disease to the natives. They trace it back to 1830, when the first missionaries reached their shores. It now returns almost annually on some of the islands, and is generally preceded by unsettled weather, and westerly or southerly winds. Its course is from east to west, lasts for about a month, and then passes off as fine weather and steady trade winds set in. It is often fatal to the old people, and to those who have been previously weakened by pulmonary diseases. In 1851 mumps are said to have first appeared at Samoa, and was traced to a vessel from California. It spread far and wide, and after lasting ten or fourteen days, passed off, but returns nearly every year in a modified form."

Diseases of the Heart and Blood-vessels.—Six cases of functional or organic disease of the heart were under treatment during the year, of which two were invalided and one proved fatal. In one of the invalided cases the disease is said to have been occasioned by a blow on the chest, sustained at gun-drill some years previously.

The fatal case occurred on the person of a warrant officer of the Salamander, who stated that twelve years previously he had suffered from articular rheumatism when a boy, and that six years subsequently, while serving in the Victor Emmanuel, at Malta, he had had an attack of pulmonary congestion, for which he was cupped, &c., and was a fortnight ill. This had occurred after some dissipation on shore. Since then, though subject to palpitation and dyspnœa on exertion, especially when going aloft, he had continued to enjoy fair health, although he had lately undergone some hard service and exposure while serving with the Curaçoa's naval brigade in New Zealand. He had only recently joined the Salamander on promotion, and was inclined to be somewhat loose in his habits as to drink.

On the 17th of July, after catching cold, he complained of pain and oppression across the upper part of the chest, with much

* Dr. W. D. Smyth.

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much dyspnœa, a sense of constriction at the lower part of the throat, hurried respiration and considerable pyrexia. The pulse was hard, full, and thrilling, the face flushed, the skin hot, and he experienced much thirst. On physical examination of the chest, disease of the heart was at once detected by the existence of a loud bellows murmur, supplanting the first cardiac sound, heard loudest at the apex, but discernible all over the chest, and increased heart's action, with heaving and diffused impulse, apparent even at a distance. Under mental and bodily quiet, the horizontal posture, low diet, derivants (dry cupping, sinapisms, &c.), and other remedies, the heart's action and other symptoms decreased, and he returned to duty. Three weeks after, while at Cape York, he had a slighter attack, which kept him thirteen days on the sick-list, and after that a material deterioration in his health and appearance became evident, while very slight exertion or exposure to cold re-induced the dyspnœa and palpitation, rendered him unable to go aloft, and unfitted him, even in his best health, for the duties of his office in a seagoing ship. He was accordingly invalided in November, at Sydney, and while on shore waiting a passage to England, a sudden accession of all his worst symptoms set in, his feet and legs began to swell, the dyspnœa and cardiac symptoms increased, and were especially urgent during the hot sultry days of the then summer season. He was again treated by dry cupping, hot pediluvia, and other derivants, to the relief of the orthopnœa, but he expired somewhat suddenly on the 29th of November. Unfortunately no autopsy was obtained, as the body lay on shore, and had to be buried speedily.

Diseases of the Alimentary Canal.—These diseases were by no means prevalent, and no loss to the service was occasioned by them either by invaliding or death. Altogether nine cases of dysentery, 105 of diarrhœa, and twenty-two of colic were under treatment during the year.

There were twenty-one cases of diarrhœa in the Brisk, the average duration of each case on the sick-list being about four days. In many instances the disease appears to have been occasioned by excesses of various kinds on shore, and in others by the high temperature experienced during the day, which was often followed by comparatively cool nights, when the perspiration was liable to become suddenly checked by the men going on deck to keep the middle or morning watches.

There were seven cases of dysentery and two of diarrhœa in

in the Eclipse, but no notice whatever is taken of them in any of the returns from that vessel. They appear to have been of a mild character, the average duration of each case of dysentery being only about eight days, and of each case of diarrhœa between three and four days.

There were one case of dysentery, and thirty-two of diarrhœa in the Salamander, the latter complaint being mainly attributable, in the opinion of the surgeon* of the ship, to the use of bad water for drinking and cooking purposes. He says:—

"Diarrhœa has occasionally prevailed among the crew, but usually as a result of remediable and seldom of climatic causes.

"During the third quarter of 1864, while lying at Somerset, it appeared after drinking water obtained from a green confervæ-clad, muddy stagnant pool on shore. Water from the same source, but filtered, was drunk by the marines on shore, with no bad effect. The ship was partly watered from this source, and the fluid issued to the crew. Diarrhœa continued, but matters were brought to a climax before the end of a week by the water becoming so putrid and offensive both to smell and taste that the men complained. It was now thrown overboard, and on removal of the cause, and substitution of condensed water, the disease at once disappeared.

"Again during the first quarter of 1865, five weeks after arrival at Sydney, and when the men had got accustomed to harbour routine and regimen, diarrhœa made its appearance at the rate of several cases per day; marked by severe epigastric griping, sickness and vomiting. The weather was fine, and the cause was traced to the water issued for drinking and culinary purposes, which was brought from the waterworks on shore. No diarrhœa prevailed on shore, and the water in the pipes was good. That received on board, however, tasted decidedly brackish, and the nitrate of silver test showed that it was loaded with salt (chlorides); the presence of which was due to carelessness in watering by boats into which, when overloaded, sea-water lapped or leaked; and of which a small quantity would be sufficient to render a whole boat-load unfit for use, especially by persons whom recent tropical residence had predisposed to gastro-intestinal ailments. On representation the tanks were pumped out, and a fresh supply more carefully brought on board, the result being a speedy disappearance of the diarrhœa. . . .

"Instances of the issue of impure and often very noxious water followed by disease, were not unfrequent previous to the introduction of condensed water; and occasionally even at the present day when a parsimonious and unwise economy adopts the not quite exploded plan of watering from the shore. The aqueous impurities may be soluble or insoluble, animal, vegetable, or mineral; one or all combined. Watering from the shore in ships' boats can seldom be accomplished with such care as to avoid impregnation with salt water.

* Dr. Alexander Rattray.

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water. In nearly every instance in which this ship has watered from the shore at Sydney, the water has at first caused gastralgia, sickness, griping, vomiting, diarrhœa, and other symptoms of gastro-intestinal irritation, which disappeared soon after removal of the cause. We have also given an instance where the presence of animal and vegetable matter in water obtained at Somerset gave rise to similar symptoms; and corresponding cases are probably met with during every commission, at least those on foreign stations.

"It is still an open question how far the dysentery and diarrhœa of China and elsewhere, as well as several other diseases, are due to the presence of animal, vegetable, or mineral matter, or living organisms introduced into the system by water used as drink. The adoption of distilled for common river or spring water, and an unlimited supply of it, are both decidedly wise innovations. . . . . Not unfrequently, although the condensed water thus made is chemically pure as it falls from the still, it becomes much polluted ere it is served out to the drinker or cook. Iron tanks require frequent internal whitewashing to keep them from rust; nor does this precaution entirely prevent that result; and thus the originally clear water soon becomes impure, and after standing a week or ten days in the tanks (the usual interval between the distillations) highly loaded and muddy from admixture with whitewash and iron rust, which takes the form of an impalpable powder that, in harbour, settles to the bottom of each tank, leaving the surface water clear, but at sea is so shaken up as to be apparent both to sight and taste; forming a dense deposit at the bottom of the basin or glass, if allowed to stand. If, after settling, the water were taken directly from each tank, much of this would be obviated; on the contrary, it is rather increased than diminished from the contents of each being pumped seriatim into that placed on the lower deck, which thus receives the concentrated impurities and deposits of the whole. Cooked in such water, the coffee, cocoa, tea, peasoup, &c. both of officers and men are not unfrequently rendered unfit for use, while diarrhœa, griping, &c., are by no means rarely traced to the drinking of such impure water; and clothes washed with it become stained and spoiled. So copious is this deposit that we can readily tell, from the appearance of the water, when the lower deck tank has been filled from the hold. Stirred up by agitation it is still more evident after every gale, or even in going to sea in comparatively fine weather. Now our aim, should manifestly be not only to *make*, but to *serve out*, pure and hence healthy water, at least for drinking and culinary purposes. The nature of that issued for washing is of little import to the naval surgeon. With this object in view we would need a five-fold reform, viz.:—

"1st. While spring, river, or lake water may be issued for domestic purposes, that supplied for drinking and cooking should imperatively be condensed.

"2nd. Water should be distilled oftener and in smaller quantity than at present. This would confer a double advantage, *e.g.*, fewer tanks would be needed, and hold room saved; and the necessity for the more frequent cleaning of the tanks would

would give the water less time to become impure from rust or whitewash.

"3rd. An improved *hold* tank is necessary. They should be made either entirely of galvanised iron, thick slate, or of iron lined with tin, slate, or porcelain. Thus water would be kept in its original purity, and never brought into contact with iron or whitewash (the necessity for the use of which would be obviated), or be surcharged with a sometimes copious sediment of these impurities.

"4th. To diminish still further the possibility of impurity, filters are necessary on the lower deck; thus either—

"*a.* The general tank from which the men drink, and the cooks obtain their supply, should be converted into a large filter to yield a thoroughly pure fluid. These might be made of any capacity and to filter any quantity of water.

"*b.* Or ordinary stone-ware filters like those now in common use in officers' messes might be judiciously placed on different parts of the lower deck.

"5th. It might be questioned whether the introduction of Normanby's distilling apparatus would not be advisable instead of the boiler and still now in use. Its advantages are, its portability and easy stowage, small size, cheapness, capability of supplying water in abundance and great purity; it may be worked by the ship's cook, and is economical. It is in common use in the merchant service, in which it is highly valued. It can distil at the rate of 540 gallons per day, which is sufficient for a crew of 300 men on an allowance; and if necessary might be constructed large enough to distil sufficient for a frigate or line-of-battle ship. In Her Majesty's Navy we have the boiler and condenser to fall back upon, should Normanby's apparatus get out of order, which is no more likely than the former; and both would be equally easy of repair by our engineers. In the merchant service the water is distilled into an open tank, which can be more easily cleaned than our form.

"In strict ships the rule is to issue one gallon each to officers and men per day when on an allowance (as at sea), and two gallons per day when on a more liberal scale, as in harbour; when a 'free tank' is allowed, the quantity used is about three and a half gallons per day; which in a ship like the Salamander, with an average complement of 100 men, amounts to one and a half tons, or 365 gallons per day for the whole crew.

"The fourth suggestion alone without the third would go far to furnish pure water; but if combined the reform would be complete; the water supplied to the filter would be less impregnated with foreign admixture; the filters themselves would not require to be so frequently cleansed, and hence would both last longer and keep in better repair.

"By adopting one or all of these suggestions many diseases arising

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from intestinal irritation induced by water loaded with impurities would be avoided, a matter of no small importance everywhere, but especially in the tropics, where such ailments are very dangerous, and apt to induce others of still more serious import. On all stations, especially in warm latitudes, where thirst is great, an abundant supply of pure water would be both grateful, and a boon as a source of increased health; while on unhealthy and especially tropical ones, where intestinal diseases are prevalent, *e.g.* China, India, Mozambique, &c., filtered water would not only be a luxury to the sick, but would prove a powerful prophylactic, by preventing many diseases which arise either from mechanical, parasitic, or animalcular irritation of the intestinal canal induced by the use of impure water. The pecuniary cost of carrying out these recommendations would be trifling, and the benefit to health and life immense; in addition to the great saving it would effect of medicines, hospital, invaliding, and funeral expenses, that would more than counterbalance the opposite outlay."

Diseases of the Genito-Urinary Organs.—Thirty-four cases of primary syphilis, seven of secondary syphilis, and seventeen of gonorrhœa were under treatment during the year; and of these each case of primary syphilis was on an average twenty-four days under treatment on board ship and in hospital; each case of secondary syphilis between twenty-seven and twenty-eight days; and each case of gonorrhœa about twenty-four days.

Venereal diseases appear to be on the increase in Sydney. The surgeon of the Eclipse says:—

"Some of the chief medical men of Sydney told me that they observed a great increase, very recently, of syphilis among the lower orders, and the sanitary state of our crew while there, and subsequently, bore out the correctness of their observation. Whereas in former years during nearly as long a stay there, and the men having the same amount of leave, they either escaped altogether or perhaps one case of syphilis showed itself, on this occasion there were six attacks, five of which were primary cases with suppurating sores surrounded by a hard cartilaginous-like condition of the adjacent tissues, and which required the administration of mercury. One of these cases ended in a large suppurating bubo with diseased glands incapable of granulating, and which required to be sloughed away with troches of bichloride of mercury, and all this took so much time, and reduced him to such a state, that it was four months from the date of his being entered on the sick-list, until he was fit to return to duty.

"Prostitution has greatly increased in Sydney of late, and it was the subject of remark among the medical men that a large majority of the prostitutes were very young girls, Australian-born. The increase of syphilis was mainly attributed to the greatly increased number of prostitutes. Formerly Sydney was remarkable for the very small amount of venereal disease that prevailed in so large a place; the same, however, cannot be said of it now."

Wounds

Wounds and Injuries.—A boy sustained fatal fracture of the skull, by falling from aloft.

One man was drowned by falling overboard from a boat, in a gale of wind; and two men were drowned by being washed off the flying-jib-boom in heavy weather.

A stoker committed suicide by poisoning himself with chloride of zinc. When first seen he had been vomiting constantly for some time; the surface of the body was cold and clammy, the countenance pale, the pulse small, scarcely perceptible at the wrist, the features pinched, and the pupils contracted. He complained of acute pain at the epigastrium, and of a sensation of burning in the throat; vomiting was incessant, and his stools were passing from him involuntarily. He continued with these symptoms gradually to sink, and expired on the morning of the third day after taking the poison. A post-mortem examination of the body was made twelve hours after death. The œsophagus was not examined. On opening the abdominal cavity, the peritoneum was found to be discoloured and injected, and a considerable quantity of dark-coloured fluid had escaped into the abdominal cavity. The stomach was perforated by an irregularly shaped opening, admitting three fingers; the mucous membrane was disintegrated, and the coats of the stomach so softened that it could not be handled without breaking down; the intestines externally exhibited a dull brown appearance throughout.

An officer of a plethoric habit of body, who when last seen alive was lying asleep on the lockers in his mess-place, was found half an hour afterwards lying on his face, his body under the table, and his chin caught on the locker, the edge of which pressed on his throat; his body was partially suspended, his arms lying along his sides, and his legs stretched out on the deck. The table of the mess-place had to be removed before the body could be relieved from this position, when it was found that death must have taken place some ten or fifteen minutes before assistance reached him. He was subject, it appears, to epileptic seizures, and it is thought his death was occasioned by suffocation while in a fit. No post-mortem examination of the body was made.

The total number of deaths was sixteen, ten being from various forms of disease, and six from violence. This gives the total death-rate as 15·7 per 1,000 of mean force, which is 4·3 per 1,000 in excess of the ratio of mortality of the preceding year.

Australian Station.

Invalided.—Three men were invalided for diseases of the brain and nervous system; eight for diseases of the organs of respiration, seven of whom were phthisical; two for disease of the heart; five for rheumatism; one for diseases of the bones and joints; two for diseases of the skin and cellular tissue; four for dyspepsia and debility, and one for a wound; making the total number invalided twenty-six, which is in the ratio of 24·4 per 1,000 of mean force, being slightly above the invaliding rate of the previous year.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	24	22·5	—	—	—	—
Intermittent Fever	4	3·8	—	—	—	—
Disease of the Brain	1	·9	—	—	1	·9
Epilepsy	3	2·8	1	·9	—	—
Paralysis	2	1·8	—	—	—	—
Insanity	1	·9	1	·9	—	—
Delirium Tremens	4	3·8	—	—	—	—
Neuralgia	11	10·3	—	—	—	—
Vertigo	4	3·7	—	—	—	—
Insolation	5	4·6	1	·9	—	—
Inflammation of the Lungs and Pleura	15	14·	1	·9	2	1·8
Phthisis and Hæmoptysis	11	10·3	7	6·5	3	2·8
Influenza and Catarrh	194	182·1	—	—	—	—
Cynanche	60	57·3	—	—	1	·9
Asthma	1	·9	—	—	—	—
Disease of the Heart, Functional and Organic	6	5·7	2	1·8	1	·9
Hæmorrhoids	5	4·6	—	—	—	—
Varix	2	1·8	—	—	—	—
Dysentery	9	8·4	—	—	—	—
Diarrhœa	105	98·5	—	—	—	—
Constipation and Colic	22	20·6	—	—	—	—
Disease of the Liver	5	4·6	—	—	1	·9
Jaundice	2	1·8	—	—	—	—
Splenitis	1	·9	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	1	·9	—	—	—	—
Syphilis, Primary	34	31·9	—	—	—	—
Syphilis, Secondary	7	6·5	—	—	—	—
Gonorrhœa	17	15·9	—	—	—	—
Orchitis	19	17·8	—	—	—	—
Stricture	3	2·8	—	—	—	—
Incontinence of Urine, &c.	2	1·8	—	—	—	—
Rheumatism	125	117·3	5	4·6	—	—
Gout	1	·9	—	—	—	—
Disease of the Bones and Joints	3	2·8	1	·9	—	—
Inflammation of the Eyes	20	18·7	—	—	—	—
Amaurosis and Cataract	1	·9	—	—	—	—
Otitis and Deafness	4	3·8	—	—	—	—
Erysipelas	2	1·8	—	—	—	—
Scrofula	1	·9	1	·9	—	—
Bubo (*Symp.*)	8	7·5	—	—	—	—
Phlegmon and Abscess	336	315·4	—	—	1	·9
Ulcer	68	63·8	1	·9	—	—
Eruptions, &c.	16	15·	—	—	—	—
Dyspepsia and Debility	59	55·3	4	3·8	—	—
Dropsy	3	2·8	—	—	—	—
Headache	4	3·8	—	—	—	—
Wounds and Injuries	345	323·9	1	·9	1	·9
Burns and Scalds	16	15·	—	—	—	—
Hernia	2	1·8	—	—	—	—
Drowned	—	—	—	—	3	2·8
Asphyxia	1	·9	—	—	1	·9
Suicide	1	·9	—	—	1	·9
TOTAL	1,596	1,498·5	26	24·4	16	15·

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	203	- -	203	·5	·4
Intermittent Fever - - -	16	- -	16	—	—
Disease of the Brain - -	5	55	60	·1	—
Epilepsy - - - -	44	- -	44	·1	—
Paralysis - - - -	66	- -	66	·1	—
Insanity - - - -	17	51	68	·1	—
Delirium Tremens - - -	18	- -	18	—	—
Neuralgia - - - -	39	- -	39	·1	—
Vertigo - - - - -	35	- -	35	—	—
Insolation - - - -	135	13	148	·4	·3
Inflammation of the Lungs and Pleura - - - -	286	63	349	·9	·8
Phthisis and Hæmoptysis -	207	367	574	1·5	1·4
Influenza and Catarrh - -	1,239	- -	1,239	3·3	3·
Cynanche - - - - -	348	- -	348	·9	·8
Asthma - - - - - -	7	- -	7	—	—
Disease of the Heart, Functional and Organic - - -	132	111	243	·6	·5
Hæmorrhoids - - - -	63	- -	63	·1	—
Varix - - - - - -	28	- -	28	—	—
Dysentery - - - -	87	- -	87	·2	·1
Diarrhœa - - - -	488	- -	488	1·3	1·2
Constipation and Colic - -	123	- -	123	·3	·2
Disease of the Liver - -	61	- -	61	·1	—
Jaundice - - - -	43	- -	43	·1	—
Splenitis - - - -	7	- -	7	—	—
Disease of the Bladder and Kidneys - - - -	35	- -	35	—	—

TABLE, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Syphilis, Primary	812	9	821	2·2	2·
Syphilis, Secondary	194	-	194	·5	·4
Gonorrhœa	325	80	405	1·1	1·
Orchitis	450	145	595	1·6	1·5
Stricture	55	-	55	·1	—
Incontinence of Urine, &c.	83	-	83	·2	·1
Rheumatism	1,676	253	1,929	5·2	4·8
Gout	23	-	23	—	—
Disease of the Bones and Joints	104	-	104	·3	·2
Inflammation of the Eyes	236	103	339	·9	·8
Amaurosis and Cataract	28	-	28	—	—
Otitis and Deafness	29	-	29	—	—
Erysipelas	32	-	32	—	—
Scrofula	24	-	24	—	—
Bubo (*Symp.*)	191	-	191	·5	·4
Phlegmon and Abscess	2,050	-	2,050	5·6	5·2
Ulcer	1,244	95	1,339	3·6	3·3
Eruptions, &c.	184	-	184	·5	·4
Dyspepsia and Debility	675	82	757	2·	1·8
Dropsy	23	-	23	—	—
Headache	56	-	56	·1	—
Wounds and Injuries	3,075	112	3,187	8·7	8·1
Burns and Scalds	130	-	130	·3	·2
Hernia	38	-	38	·1	—
Poison	3	-	3	—	—
TOTAL	15,472	1,539	17,011	46·6	43·7

TABLE, No. 3.

SHOWING the Number INVALIDED from each Ship employed on the AUSTRALIAN STATION.

CAUSE OF INVALIDING.	Brisk.	Curaçoa.	Eclipse.	Esk.	Falcon.	Marines, Somerset.	Salamander.	TOTAL.
Insanity	–	–	–	1	–	–	–	1
Epilepsy	–	–	–	–	–	–	1	1
Insolation	–	–	–	–	–	1	–	1
Inflammation of the Lungs and Pleura	–	1	–	–	–	–	–	1
Phthisis and Hæmoptysis	1	–	–	3	3	–	–	7
Disease of the Heart, Functional and Organic	–	–	–	–	1	–	1	2
Rheumatism	1	–	1	1	–	1	1	5
Diseases of the Bones and Joints	–	–	–	–	1	–	–	1
Scrofula	–	–	–	–	–	–	1	1
Ulcer	1	–	–	–	–	–	–	1
Dyspepsia and Debility	1	–	–	–	3	–	–	4
Wounds	–	–	1	–	–	–	–	1
TOTAL	4	1	2	5	8	2	4	26

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship employed on the AUSTRALIAN STATION.

CAUSE OF DEATH.	Brisk.	Challenger.	Curaçoa.	Esk.	Falcon.	Marines, Somerset.	Salamander.	TOTAL.
Inflammation of the Brain	–	–	1	–	–	–	–	1
Diphtheria	–	–	1	–	–	–	–	1
Inflammation of the Lungs and Pleura	–	–	–	–	–	1	1	2
Phthisis	1	1	1	–	–	–	–	3
Disease of the Heart	–	–	–	–	–	–	1	1
Disease of the Liver	–	–	–	–	1	–	–	1
Phlegmon and Abscess	–	–	–	–	–	–	*a* 1	1
Wounds and Injuries	–	–	–	1	–	–	–	1
Drowned	–	–	1	–	2	–	–	3
Suicide	–	–	1	–	–	–	–	1
Suffocated	–	–	–	1	–	–	–	1
TOTAL	1	1	5	2	3	1	3	16

a Psoas Abscess.

TABLE, No. 5.

SHOWING the Names of the Ships; the Average Complements; the Number of Cases; the Total Number of Days' Sickness on Board, and the Average Number of Men Sick Daily, in each Ship.

C. S. Station Changed.

Rates, &c.	NAMES of SHIPS.	Where Commissioned.	When Commissioned.	Number of Cases.	Tonnage.	Horse Power.	Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
Fifth Rate -	Curaçoa - C. S.	Portsmouth	22 April 1863	31	1,571	S. 350	1 Jan. to 30 Sept.	325	245	246	3,181	8·7	35·5	6
Sixth Rate -	Brisk - - -	Devonport -	30 Aug. 1864	16	1,087	S. 250	Year - -	185	185	220	2,218	6·	32·4	6
	Challenger - C. S.	Sheerness -	12 April 1866	18	1,462	S. 400	1 Oct. to 31 Dec.	280	70	92	1,244	3·4	48·5	-
	Esk - - -	Portsmouth	20 May 1863	21	1,169	S. 250	Year - -	240	240	358	2,306	6·3	26·2	2
Sloop - -	Falcon - - -	Portsmouth	22 Oct. 1863	17	751	S. 100	Year - -	155	155	273	2,443	6·6	42·5	8
	Salamander - -	Sheerness -	10 Dec. 1863	6	818	P. 220	Year - -	95	95	258	2,564	7·	73·6	10
Gun Vessel -	Eclipse - C. S.	Sheerness -	26 Sept. 1862	4	70 0	S. 200	1 Jan. to 30 Sept.	80	60	124	1,064	2·9	48·3	5
Marine Detachment, Somerset		- - -	2 Aug. 1864	–	–	–	Year - -	15	15	25	441	1·2	80·	2

Table, No. 6.

Showing the Number of Cases of all Diseases and Injuries in each Ship on the Australian Station.

DISEASE OR INJURY.	Brisk.	Challenger.	Curaçoa.	Eclipse.	Esk.	Falcon.	Marines, Cape York.	Salamander.	Total.
Continued and Remittent Fever	5	–	6	13	–	–	–	–	24
Intermittent Fever	–	–	–	1	1	–	–	2	4
Disease of the Brain	–	–	*a* 1	–	–	–	–	–	1
Epilepsy	–	–	–	–	1	–	–	2	3
Paralysis	–	–	1	1	–	–	–	–	2
Insanity	–	–	–	–	1	–	–	–	1
Delirium Tremens	–	1	3	–	–	–	–	–	4
Insolation	–	–	–	–	–	–	1	4	5
Neuralgia	1	–	–	–	10	–	–	–	11
Vertigo	–	–	3	–	–	1	–	–	4
Inflammation of the Lungs and Pleura	3	1	2	1	2	4	2	–	15
Phthisis and Hæmoptysis	2	1	–	1	3	2	–	2	11
Cynanche	6	1	*c* 38	6	2	6	–	1	60
Influenza and Catarrh	30	16	17	21	42	42	5	21	194
Asthma	–	–	–	–	1	–	–	–	1
Disease of the Heart, Functional and Organic	2	–	–	–	1	–	–	3	6
Hæmorrhoids	–	–	1	–	2	2	–	–	5
Varix	1	–	1	–	–	–	–	–	2
Dysentery	–	–	–	7	–	–	1	1	9
Diarrhœa	21	3	8	2	20	17	2	32	105
Constipation and Colic	3	2	9	1	1	1	2	3	22
Inflammation of the Liver	1	–	–	–	–	1	–	3	5
Jaundice	1	–	–	–	–	–	–	1	2
Splenitis	–	–	–	–	–	–	–	1	1
Inflammation of the Bladder and Kidneys	–	–	–	–	1	–	–	–	1
Syphilis, Primary	3	6	9	5	–	2	–	9	34
Do. Secondary	2	–	1	1	–	–	–	3	7
Gonorrhœa	6	–	2	2	3	2	–	2	17
Orchitis	1	–	7	3	3	4	–	1	19
Stricture of the Urethra	–	–	–	–	2	1	–	–	3
Incontinence of Urine, &c.	–	–	2	–	–	–	–	–	2
Rheumatism	13	9	18	10	26	23	5	21	125
Gout	1	–	–	–	–	–	–	–	1
Disease of the Bones and Joints	2	–	–	1	–	–	–	–	3
Inflammation of the Eyes	2	4	–	1	2	1	2	8	20
Amaurosis and Cataract	–	–	–	–	–	1	–	–	1
Otitis and Deafness	–	1	–	–	2	–	–	1	4
Erysipelas	–	–	–	1	1	–	–	–	2
Bubo (*Symp.*)	1	1	1	–	2	1	–	2	8
Scrofula	–	–	–	–	–	–	–	1	1
Phlegmon and Abscess	35	14	40	17	121	56	3	50	336
Ulcer	21	5	12	6	12	3	–	9	68
Eruptions, &c.	5	3	–	–	5	3	–	–	16
Dyspepsia and Debility	11	2	5	6	14	13	–	8	59
Headache	–	2	–	–	–	–	–	2	4
Dropsy	–	–	–	–	3	–	–	–	3
Wounds and Injuries	40	20	57	16	73	82	1	56	345
Burns and Scalds	1	–	1	1	–	5	1	7	16
Hernia	–	–	–	–	–	–	–	2	2
Asphyxia	–	–	–	–	1	–	–	–	1
Poisoning	–	–	*b* 1	–	–	–	–	–	1
Total	220	92	246	124	358	273	25	258	1,596

a Tubercle. *b* By chloride of zinc. *c* 1 Diphtheria.

IRREGULAR FORCE.

Irregular Force.

DURING the year 1866, the Irregular Force comprised fifty-seven vessels, and a battalion of marines, on its passage home from Japan. Of the vessels, four were ironclad; one was of the second rate; one of the third rate; seven of the fourth rate; four of the fifth rate; eight of the sixth rate; there were thirteen sloops; six gun-vessels; six steam-vessels; four troop-ships, and three store-ships. Returns for the whole year were only obtained from seven of the vessels; from the remainder the periods varied from one to eight months. The mean force, corrected for time, was 5,080, and the total number of cases entered on the sick-list, 8,067, which is in the ratio of 1,587·9 per 1,000 of mean force, being a decrease, compared with the preceding year, equal to 85·8 per 1,000.

The daily loss of service from febrile diseases, including the exanthemata, was in the ratio of 2·2 per 1,000 of mean force; from diseases of the brain and nervous system, ·4; of the respiratory organs, 7·9; of the heart and bloodvessels, ·9; of the alimentary canal, 1·9; of the liver, ·2; of the genito-urinary organs, 14·3; from rheumatism, 5·3; diseases of the bones and joints, ·4; of the special senses, ·8; of the skin and cellular tissue, 16·3; from diseases not classed, 2·; and from wounds and injuries of various kinds, and hernia, 10·4. The average number of men daily ineffective was 336·6, which is in the ratio of 66·2 per 1,000 of mean force, being a slight decrease as compared with the preceding year.

Fevers.—One hundred and seventy cases of continued and remittent fever; fifty-four of ague; sixteen of small-pox; seven of measles; six of scarlatina, and two of vaccinia were under treatment during the year; and of these, two of primary fever, and one of ague, were invalided; and four of primary fever, and one of small-pox, proved fatal.

Continued

Continued and Remittent Fevers.—There was a single case of primary fever in the Barracouta, and seven in the Basilisk, but they presented no features of any interest. In the Basilisk all the cases were of the ephemeral type; and the case in the Barracouta was at once discharged to hospital.

In the Bristol there were seven cases of primary fever, one of which proved fatal; they are all classed as febricula. The fatal case was entered on the sick-list for whitlow, but two days subsequent to his entry he had a severe rigor, followed by high fever, which soon assumed a typhoid type; in this condition he was discharged to the Naval Hospital at Plymouth, where he died on the following day, being the fifth day from his entry on the sick-list. Soon after his admission to hospital he became comatose, from which state he never rallied. Post-mortem examination of the body revealed inflammation of the membranes of the brain, enlarged and congested Peyers' patches, and extensive aortic valvular disease.

None of the cases of primary fever in the Coquette or Curaçoa were of any importance.

There were six cases of primary fever in the Dart. They are classed as remittent, and are attributed to exposure to malarious influences at Bathurst, on the West Coast of Africa. The average duration of each case was seven days.

There was a single case of remittent fever in the Doris. It was eighteen days under treatment, but as no particular mention is made of it, it was probably not of great severity.

There were fourteen cases of primary fever in the Eclipse, all of which are classed as continued. They occurred during the voyage from New Zealand to England, when the crew were exposed to very heavy weather. Each case was, on an average, about ten days under treatment.

The cases of primary fever in the Endymion and Icarus do not call for any comments.

In the Leander there were three cases of primary fever, one of which was of great severity, being of the enteric type. In this instance the disease seems to have been contracted from cases which had previously occurred in the vessel when on the Pacific Station. There were four such cases in the vessel during the year, but only one of these occurred during the period in which she formed part of the Irregular Force. In that instance there was great nervous prostration, with low muttering delirium, and the bowels were very relaxed. There does not appear to have been any eruption, however.

Irregular Force.

There were two cases of primary fever in the Meeanee, both of which proved fatal; one in the military hospital at Gibraltar, concerning which no information can be obtained; the other in Haslar Hospital. In this case the patient, a non-commissioned officer of marines, had suffered on several occasions from remittent fever, which was invariably followed by rheumatism. In Malta he again broke down, and was under treatment for febrile cachexia when the vessel sailed for England. During the passage home he had constant fever, with occasional exacerbations, a pulse averaging above 100, at times cough, much debility, and œdema of the lower extremities. The surgeon* says:—

"He fell into an exceedingly weak state, completely lost his appetite, passed sleepless nights, and was at times exceedingly confused. There was never any very great heat, and his tongue was soft, moist, and white. He complained of no pain whatever. During the 12th of February there was irritability of the stomach, and he passed three loose stools, but had no abdominal pain, nor tenderness on pressure over that region. The treatment was at first quinine, and pectoral mixtures; afterwards the former alone, in large doses, with chlorodyne draughts at bed-time, beef-tea, and wine and brandy to support the strength. On the 13th of February he was discharged to Haslar Hospital for treatment."

He died there two days afterwards perfectly comatose, head symptoms having rapidly set in.

As a rule, the cases of primary fever in the Irregular Force were of so little interest, that it appears desirable to refer only to those which presented any noteworthy features. There was a case of enteric fever of great severity in the Ocean, and with reference to that, the following observations are made by the surgeon† of the ship:—

"It is impossible to trace by what means this attack of fever was generated. The patient, a ward-room servant, of a thin, spare, healthy habit of body, was born at Shoreham, in Kent, and had passed the last six years 'in service' in London; was of good character and steady habits; had been entered on the ship's books in the second week of August, and had only gone into a few shops on errands in Devonport, for his master, and had never slept on shore. The ship's company were, at the time of his seizure, hulked on board the Vigo, in Hamoaze, whilst the Ocean was being fumigated and cleansed after the breaking-out of small-pox, and the patient's sleeping-place was on the lower deck, and not at all crowded. The invasion

* Surgeon William Ross, M.D. † Surgeon John Rorie.

invasion of the disease was so insidious, that the patient could not speak with certainty as to the day he first felt indisposed. He began to find the slightest exertion a trouble, to lose his appetite, to feel as if he were in dreamland; and although he felt he was not well, could not say why, or in what way he felt unwell; then succeeded slight chills, nausea, slight headache, lumbar pains, and thirst. It was then I first noticed the man, and put him on the sick-list despite his protestations that he was not ill enough for that; his tongue was moist and coated; pulse small and sharp, 96; face pale and pinched, with flushed cheeks and brilliant eyes; slight diarrhœa existed; and on pressing the abdomen pain was complained of, and there was gurgling in the right iliac fossa; the stools were watery, and of a light yellow colour, but the significant skin eruption could not be discovered. Later he complained of a burning sensation, extending from tongue to stomach, and accompanied with intense thirst, which no amount of liquid swallowed, satiated; sordes formed on the teeth; the lips cracked; the tongue became dry and fissured; debility became intense; he passed dark, turbid urine rarely, and only in small quantity; vomited occasionally. Later again the diarrhœa, never troublesome or urgent, ceased, and the bowels became constipated. Then he began to improve, but very slowly, and was approaching convalescence, when, on the arrival of the ship at Malta, he was removed from beneath a screen on the main deck, and slept for only one night in the sick bay, when a relapse occurred, and he was immediately restored to his former position, and was discharged to hospital for treatment on the 3rd of January 1867. The treatment adopted was the administration of effervescing draughts, with ten grains of sesquicarbonate of ammonia every fourth hour, and wine and beef-tea in as large quantities, and as frequently repeated, as the stomach could bear. Two or three sinapisms were applied over the whole abdomen, and the constipation which set in at the same time, with an abatement of all the symptoms, was allowed to continue for seven days, when an enema of soap and water relieved it, and the bowels became regular up to the time of the relapse. The skin eruption never appeared; the gastro-intestinal disturbance was never severe, and although there was muscular prostration, yet the cerebral disturbance was very slight, and only observed on three consecutive nights. I do not know whether I am right in classing the fever as 'enteric,' but it certainly was not 'typhus,' nor 'relapsing.'"

Of four cases of primary fever that were under treatment in the Racoon, two were of the enteric type; they were characterised by headache, pain in the back and limbs, preceded by rigors; and diarrhœa almost from the commencement, with pain in the right iliac region, increased on pressure, which also occasioned gurgling there; the specific eruption was also present over the abdomen. One case was sent to hospital, and the other was treated on board; both appear to have done well. The disease was, in all probability, contracted at Queenstown, where the vessel was at the time.

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There were twenty-seven cases of primary fever in the Severn, all of which are classed as remittent; twenty-three of these occurred in the Lady quarter of the year, when the vessel was on her homeward voyage from Bombay. The average duration of each case was about ten days. The surgeon* makes the following remarks upon them:—

"After the ship left Bombay, and had proceeded southward into warmer weather, the number of cases of a febrile character increased, and although the majority of them showed no special severity or cause for alarm, yet in a few cases the symptoms became more urgent, there was more pyrexia and cerebral affection, and a marked remission, occurring in the morning. These cases presented, in different degrees, the usual febrile symptoms, headache, pains in the limbs, quick pulse, flushed face, &c.; the bowels were generally confined, and there were soreness and stiffness of the muscles, principally of those of the loins and lumbar region. In almost all the cases the patients complained of stiffness and soreness of the eyes, and the eyes were in all more or less suffused; the tongue was white, loaded and tremulous, and the chief complaint of all these patients was of weakness or giddiness on sudden motion. The treatment adopted was, in the first instance, a purgative, either mercurial or saline, as suited the patient's condition, and afterwards rest in his hammock, and a diaphoretic dose either of James's or Dover's powder exhibited. When the action of these had in some degree diminished the heat of skin, quinine, in five or more grain doses, was given three times a day; in very few of the cases did the disorder return on the second day, and they all made good recoveries. The greater number of these cases were put on the list when the ship was nearly becalmed under the line. As she crossed into southern latitudes, and entered a cooler region comparatively, the disorder lessened, and when she had arrived at the Mauritius, it had almost disappeared."

There were twenty-one cases of primary fever in the Simoom, all of which are classed as continued. Although they are said to have been mild, they would appear to have been somewhat tedious in their convalescence, as the average duration of each case on board ship was over fifteen days, and this does not show the loss of service sustained by them, two cases having been discharged to hospital.

In the Stromboli there were five cases of primary fever, one of which proved fatal. This occurred in the person of a young officer, who was placed on the sick-list on the 24th of March, eleven days after leaving Rio de Janeiro for England. The fever was of the enteric type, and was accompanied with severe

* Surgeon Henry Loney.

severe diarrhœa at the beginning of the attack, and by vomiting, and pain over the abdomen. These symptoms were, however, much relieved by the treatment to which he was subjected, and he appeared to be going on very well, when, on the sixteenth day, the diarrhœa, which had hitherto been moderate and under control, set in with great severity, accompanied by very free hæmorrhage from the bowels, and by tenderness over the abdomen, especially in the right iliac region. He was at this time very weak, and had to be freely supported by stimulants and by nutritious diet. The hæmorrhage was checked by the acetate of lead and opium pill, but, notwithstanding every exertion, he sank and expired on the 19th of April, twenty-seven days from the commencement of the attack. About sixteen hours before his death some of the symptoms of perforation presented themselves, such as diffused tenderness and swelling of the abdomen, and complete prostration of the vital powers, but as there was no post-mortem examination of the body, this could not be verified.

All the cases of fever appear to have been contracted at Rio de Janeiro. The first occurred on the 22nd of March, the ninth day after leaving Rio; the second, which ended fatally, on the 24th; the third on the 26th; and the fourth on the 3rd of April. The fifth case was a relapse which occurred to the first person attacked, who was again seized on the 11th of April, and was twenty-three days under treatment. Besides the fatal case there was one other of great severity; it occurred in the person of a young officer, and is said to have been a well-marked case of typhus, with high fever, maculated skin, sordes on the teeth, constipation of the bowels, and a distinctly marked crisis. He was forty-eight days on the sick-list. The surgeon* says:—

"Both these young gentlemen went on shore together at Rio de Janeiro, and frequented the same houses, but the cases presented the distinct characteristics of the two forms of fever."

There were fifteen cases of primary fever in the Urgent, all of which are classed as continued. The average duration of each case was between fourteen and fifteen days; some of them were of considerable severity. Ten cases occurred in the Lady quarter of the year, nine of them in the months of January

* Surgeon E. T. Mortimer.

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January and February, when the vessel was on the coast of Africa. The surgeon* says:—

"Four of them took place within seven days of our leaving Sierra Leone, two whilst we were actually there, and two occurred two days after we left the Gambia, on our passage from Lagos to Sierra Leone. There was no appreciable difference in the weather or atmosphere to account for these cases. The weather was certainly extremely hot, the thermometer in the shade varying between 82° and 91°. The men were not unduly exposed to the sun. The cases were all of the continued type, and all presented somewhat the same features, viz., suddenness of attack, headache, great lassitude, pain in the back and limbs, bowels confined; and in nearly all there was vomiting. The conjunctivæ were injected. Seven cases were very amenable to treatment, which was simple, consisting of purgatives to get the bowels freely moved, effervescing draughts to allay vomiting; then simple salines till the head symptoms disappeared, after which quinine was given, and they improved astonishingly fast, five recovering in about ten days each, and two were sick two days only, proving to be febricula; but in all these cases, when put on the list, I saw reason to apprehend a serious attack, as their first symptoms were so severe.

"Two cases were dangerous and protracted. The first was placed on the sick-list on the 7th of January, complaining of severe pain in the epigastrium; no tenderness; bowels loose. Castor oil was administered. On the 8th he had headache and giddiness, with pain at the epigastrium; tongue white; pulse 72, pretty good. He continued in very nearly the same state until the 10th, when, whilst at the water-closet, he fell down insensible, and remained more or less so for two hours, sometimes struggling very violently, at others being quiet, and even recognising his name; pupils sometimes contracted, at others dilated, occasionally acting; pulse 70, of tolerably good character. He appeared to be suffering acute pain at the epigastrium; stupes were applied to it, and blistering fluid behind the ear. On the following day he complained of pain and tenderness of the epigastrium; the tongue was white in the centre, red at the tip; vision much affected; he could not discern the number of fingers held up, but the pupils acted properly. Cold lotion was applied to the head, and a blister to the epigastrium. The bowels were well moved. The inability to see continuing, and he having a good strong pulse, I cupped the back of his neck, and applied a blister behind the ear. From this time he gradually but very slowly improved, his progress being frequently interrupted by relapses, so that he required very careful watching. The treatment consisted of purges and salines as required. Demulcents were given when he had gastric symptoms, which indeed were the most troublesome, and consisted of severe pain in the epigastric and hypochondriac regions. At such times stupes and sinapisms were applied, and always afforded relief. Directly they could be borne, quinine, nourishing diet, and wine and ale were given

* Surgeon F. H. Blaxall., M.D.

given him. These gradually restored his health and strength, and he was discharged to light duty on the fifty-third day, but he was even then in a very debilitated state.

"The second bad case was that of a warrant officer, and occurred at Sierra Leone, but we had only been there one day. The weather was very hot; I was called to his cabin, and found him sitting up. He complained of very severe frontal headache, 'sniffling' of the nose, great pain of the back and loins, extreme languor and vomiting. The eyes were suffused, the eyeballs tender, the conjunctivæ congested; the pulse, 96, was very small and scarcely perceptible, and he was very incoherent. As yellow fever had been in the harbour, this case made me very anxious. I isolated him as much as possible, sprinkled disinfectants in his neighbourhood. I first applied evaporating lotions to his head, and administered effervescing draughts until the vomiting was allayed, then gave a full dose of castor oil; I was afraid of other purgatives, as he had been subject to dysentery. Having got his bowels freely moved, and the vomiting stopped, I gave him simple saline draughts composed of Pot. nit., liq. ammon. acet., and spts. æth. nit. Thirst was extreme; urine pale, acid, sp. gr. 1012. The head symptoms became very severe, vision was much affected, light caused pain, and there was great tenderness of the eyeballs. He got no sleep. Pulse raised from 76 to 96, tolerably full, but with no power. On the third day I applied a blister behind his ear, and at night gave him one-third of a grain of Morph. hydrochlor. combined with one drachm of Liq. ammon. acet. This did not procure sleep, but produced a violent perspiration. Next night I repeated the morphia with happy effect, as he got a long sleep. From this time he gradually recovered, and was sent to light duty on the forty-first day. He continued, however, very weak and debilitated, and so was not allowed to do much, but simply to amuse himself. His vision continues much impaired, and probably he will not regain health and strength until we arrive in England."

Small-pox.—There were three cases of small-pox in the Doris. The first case made its appearance on the 27th of March, three days after the vessel had gone to sea on her passage to the North American and West Indian station. The patient had been vaccinated, and the disease ran a mild course. The two other cases were admitted to the sick-list on the 3rd of April. They also were very mild, the men being protected by previous vaccination. The disease appears to have been originally contracted at Devonport. Dreading its extension amongst the ship's company, the vessel put into Gibraltar, where the three men were discharged to hospital.

A single case of small-pox occurred in the Icarus, in the person of a seaman, who appears to have contracted the disease at Sheerness. It did not, however, become developed until after the vessel had left Plymouth, on her passage to China; and, as in the case of the Doris, to obviate as much

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as possible the spread of the disease, the Icarus made for Gibraltar and landed the patient. It is not stated whether the patient had been previously vaccinated or not, but the case ran a mild course in hospital. The period of incubation is said to have been fourteen days. When at Gibraltar the crew were examined, and all those who showed faint vaccination marks were re-vaccinated as soon as fresh lymph could be procured. Thirteen were thus operated on; in two cases only with perfect success, and in one with partial success. On the remainder the operation had no effect whatever.

In the Ocean there were eight cases of small-pox, one of which proved fatal. With reference to these cases the surgeon says:—

"Small-pox first made its appearance in the ship on the 16th of October, whilst cruising in lat. 48° N., long. 12° W., with the Channel squadron; and on the thirteenth day after her departure from Queenstown, where she had been at anchor for twenty hours for the purpose of coaling, and where no leave had been granted to the ship's company. The first person attacked (a marine, in whom the disease proved fatal) had last been on shore on leave for seven hours on the 30th of September, at Castletown, Bantry Bay, had only entered with a companion two or three regular public-houses there, where the only native present was the waiter who served them. The medical practitioner there declared the town and neighbourhood to be free from the disease, and to have been so for two years at the least, and his assertions were corroborated by answers which I received to questions put to several of the peasantry whom I casually met on the road, on their return from market. What may still more strengthen the certainty of the absence of the disease from the place is the fact, that on the return of the squadron there, and during its stay, a period of eleven days, general leave was several times granted to the ships' companies of the various ships, but in none of them did it appear. The latest opportunity this man had of exposure to infection before the 30th of September occurred on the 12th of August at Plymouth, when he was on shore, and where, as in many large towns, a few cases of the disease doubtlessly existed. The period of incubation, then, as far as could be traced, occupied the astounding number of sixty-five days.

"By this man I believe the disease was introduced, and when the character of the eruption had evidenced itself, I represented (on the 22nd of October) that considering the presence of such a disease, viz., confluent small-pox with putro-adynamic fever of the very worst type, amongst a large ship's company; the want of perfect and thorough ventilation from the necessary closure of the ports on the gun-deck, consequent on the state of the weather, where the small space for the isolation of any new case that might occur would tend to intensify its infecting power, I should recommend an immediate return to the nearest port where a naval hospita existed. On the afternoon

afternoon of the day I made this representation the patient died, and, by my advice, everything belonging to him, both bedding and the contents of his bag (as the former was certainly and the latter most probably infected) were immediately thrown overboard, and the body was committed to the deep four hours afterwards, as I even feared the infection of the ship's company by the corpse. On the 25th the vessel arrived as Berehaven, and protective measures in the form of vaccination would have been resorted to but no lymph could be obtained until the day previous to our departure for Plymouth, and then only four ivory points could be spared. On the 3rd of November, thirteen days after this man's death, I reported that no more cases had occurred, and that I both hoped and considered that the chances were very slight of the re-appearance of the disease; but on the 5th it again manifested itself in the discrete form in the person of a gunner, Royal Marine Artillery; on the 6th another case was added; on the 7th, three more. On the same day the whole of the ship's company were examined by the medical officers, and fifty-four persons in whom the vaccination scar was either absent altogether or very imperfect, were selected for re-vaccination. The lymph was obtained from the Inspector General of the Royal Naval Hospital at Plymouth. In order, also, to guard against any concealment of the disease, the whole of the ship's company were daily examined at divisions by the medical staff. On the 14th, a period of seven days having elapsed, another case was added, and the final one on the 16th, on which day also twenty-five men out of the fifty-four first operated on, and in whom no successful results appeared, were re-vaccinated. On the 16th it was advised that the ship's company should be hulked, and the Ocean subjected to a thorough fumigation and cleansing; consequently, on the following day, the officers and ship's company were turned over to the Vigo. On the 19th the holds, stokehold, and lower deck were fumigated with chlorine, the hatches being battened down and kept closed for forty-eight hours. On the 21st thorough cleansing, painting, and whitewashing of the holds, decks, and heads commenced; and on the 23rd, after consultation with the Inspector General, it was determined that a period of at least fifteen days ought to elapse before the Ocean should be re-occupied by the crew, in order that re-infection by small-pox might be prevented.

"The second party of men were all successfully vaccinated, and it is now a subject of congratulation to myself that there is not a single unprotected person in the ship.

"The lymph contained in hermetically sealed glass tubes was found to be the most useful and efficacious in every way. From this date no more cases have appeared.

"The primary fever was severe in the first case only; the patient's health had always been good, and he bore a good character. The lumbar pain was, and continued to be, up to within a short time of death, the most distressing symptom complained of. Then great prostration followed, attended with the exhalation of the most fœtid odour from his person, and passive hæmorrhages from the bowels, the blood not coagulating; all which symptoms, conjoined with the non-appearance of any eruption, were, I believe, indicative of the

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depressing influence of the poisonous miasm on the organic functions, and of the inability of the vital energies to re-act sufficiently, or to develope a state of healthy action, despite the administration of the the most powerful stimulants. The whole circulating fluid must have been totally altered, and the loss of tone in the capillary circulation must have admitted of this sanguineous effusion, or rather exudation. The eruption cropped out ninety-six hours after the invasion of the primary fever, whilst the patient was in a warm bath for the purpose of being cleansed; and I believe, except for this, would never have appeared, thus adding another to the list of those cases of small-pox without eruption; and its non-appearance at first must have been due to extremely depressed vital power. To conclude, the patient's whole appearance suggested the idea of a general putrefaction even before life had taken its departure.

"The rest of the cases were of the discrete form, and all save one rejoined the ship from hospital before she sailed for the Mediterranean."

Of the patients affected in this epidemic the vaccine cicatrix was imperfect in the man who died, and also in another marine. In one, a stoker, there were no scars; the remainder showed good vaccination marks. Of the whole number affected four were marines.

With reference to the time when the first case contracted the infection, it appears more probable that it was when coaling at Queenstown than when on leave sixty-five days before, at Plymouth. It is quite possible that the people connected with the coal hulk or barges may have been the means of propagating the disease, and the period which elapsed between the time of coaling and the man's seizure, thirteen days, is much more in accordance with what is known of the usual course of the poison, than the long period to which it is supposed it may be referred.

There were two cases of small-pox in the Terrible. One occurred at Corfu in January, and one at Spithead in the month of May. In the latter instance the disease is supposed to have been contracted at Plymouth, where the man had been on leave. No information is given as to whether either of these cases showed vaccination cicatrices or otherwise.

Two cases of variola occurred in the Topaze, one of which appeared shortly after her leaving England for the Pacific. As in the cases of the Doris and Icarus, the vessel put into Gibraltar, where the man was landed. The first case appears to have occurred at Plymouth, and to have been sent to hospital there. The man who was taken ill at sea is said to

to have had the disease before; no information is given as to whether the other man had been vaccinated or not.

Measles.—A single case of measles appears in the return from the Challenger, but no information whatever is given in connection with it.

There was a single case of measles in the Jason. The disease was contracted at Plymouth, and the man was at once discharged to the hospital. It appears to have been a very mild case.

There were five caess of measles in the Topaze. They occurred at intervals between the commissioning of the ship, on the 24th of January, and her arrival at Gibraltar on the 11th of March. The surgeon* says:—

"The ship's company was mustered, and questioned to endeavour to find out, by each individual statement, the number of those who had already suffered from the disease, with a view to aid in the selection of men to serve as attendants on the sick, in case of an epidemic. Of the 538 men, 316 had sufferred, 84 had not, and 138 were uncertain, but I think that more than this number were in doubt."

Scarlatina.—There were six cases of scarlatina in the squadron, five of which occurred in the Racoon, and one in the Topaze. Of the cases in the Racoon the surgeon† says:—

"Five cases of scarlatina broke out on board in one week, viz., between the 12th and 19th of April. The ship left Valencia on the 9th, arrived at Berehaven next day, and two days afterwards a midshipman complained of sore throat, and of being generally unwell. Scarlatina was not for a moment suspected till the 15th, three days after he was put on the list, when the characteristic eruption appeared on the skin and on the fauces. Sick quarters could only with great difficulty be procured for such a case at Castletown; indifferent ones, however, were at length obtained, to which he was sent on the 16th, where he made a good recovery without an unfavourable symptom. The next case was detected on the morning of the 18th, and the third on the morning of the 19th. Both were as soon as possible sent to the same sick quarters. Two other cases were detected on the evening of the 19th. The ship being ordered to Crookhaven, on our arrival there on the afternoon of the 20th, these two cases were sent to the Naval Hospital at Haulbowline, in Her Majesty's ship Advice. Fortunately no other cases occurred. Great

* Surgeon J. Palmer. † Surgeon James Young, M.D.

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Great care was taken to have the bedding, &c., that remained in the ship well washed. All the cases recovered satisfactorily without sequelæ, and all have returned to duty. On the ship's return to Valencia, I endeavoured to trace the disease to its source, and although I could not find out its actual origin, I learned that a short time previously there had been some cases at Cahirciveen, a small town frequented by officers and men when on leave; or it may have been brought into the ship by visitors (peasants) from the country, of whom a great number had been on board on the previous Sunday."

The case said to have been scarlatina in the Topaze, was of a somewhat doubtful character. It was sent to hospital on the same day on which it occurred.

The cases of vaccinia were of no importance.

Diseases of the Brain and Nervous System.—There was an increase in all the ratios coming under this head, compared with the preceding year. The increase in the invaliding and death rates was considerable. Twenty-three persons were invalided for various forms of disease of the brain and nervous system, of whom sixteen laboured under epilepsy.

A fatal case of disease of the brain occurred in the person of a marine of the Antelope. He was an unhealthy, sallow-looking man, and rather anæmic. He stated that he had never had secondary syphilis, but that six years previously he had had acute rheumatism, and six months ago jaundice. His health, he said, had been very indifferent for the previous two years. The report of the medical officer* of the ship is as follows:—

"Admitted on the 7th of August with diplopia, dimness of vision in each eye, frontal headache of moderate severity, and pain in the left shoulder, without objective symptoms of opthalmia, or any general disturbance. Bowels confined. (A pill composed of capsicum, colocynth, and croton oil was prescribed, and a blister placed behind each ear.) During the day he complained of slight loss of power in the right leg. He slept well, and on the 8th appeared better; the diplopia had much abated; headache ceased; there was slight congestion of the left conjunctiva in the morning; the bowels had been freely moved. During the day the loss of power extended to all the limbs, in all it was slight, but most perceptible on the right side. He suffered no pain; congestion of conjunctiva disappeared; vision became worse. He used the right eye only, and saw

* Assistant Surgeon J. S. Levis, M.D.

saw indistinctly with that; hearing and other senses perfect; no pyrexia; tongue a little furred; appetite good; no signs of abdominal or thoracic disease detected; urine of normal appearance and quantity, and free from albumen. He slept fairly again; his messmates stated that he talked much more than usual, and in a 'foolish' way, though they had evidently been amused with him. I could not obtain any evidence of delirium, or any other derangement of intellect. As we every moment expected to weigh anchor for the Coast of Africa, I discharged him to Plymouth Hospital for suspected disease of the brain on the 9th of August."

He died in hospital on the 15th of August, and on post-mortem examination of the body, the brain was found congested, the right ventricle distended with fluid, and containing a small hydatid.

A death from disease of the brain occurred in connection with the Galatea. He had been sent into hospital previous to that vessel being paid off, subsequent to which he died, his name meanwhile having been transferred to the Royal Adelaide. It seems preferable, however, to retain him in connection with his former ship. He (a seaman) was placed on the sick-list on the 2nd of January for cynanche. The right tonsil was much swollen, and there was considerable pyrexia. Subsequently otitis on the right side set in, and on the 6th and 7th of January there was purulent discharge from the right ear accompanied with cophosis on that side. On the 8th of January, inflammation appears to have extended to the left ear, and on that day he was discharged to hospital with double otitis, some pain and deafness, and with a slight discharge from the left ear. Subsequently, cerebral symptoms insidiously supervened; total deafness; a fœtid discharge from both ears; irritability of stomach; and loss of strength. On the 29th of January he had a slight convulsion, and two minutes afterwards expired. Post-mortem examination of the body revealed disease of both temporal bones, and a large abscess, the size of a hen's egg, in the base of the middle lobe of the left hemisphere, containing about two ounces of pure pus. The rest of the brain was healthy.

In the Tamar, a boy was placed on the sick-list with a low form of phrenitis, of which he died in the Military Hospital at Gibraltar. While under treatment on board his ship, the symptoms were chiefly frontal headache, and great irritability of stomach; he was drowsy; the pupils were dilated, and the pulse slow. In this condition he was sent to hospital

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where he died. No particulars have been obtained as to the history of the case in hospital.

There was a death from apoplexy in the Topaze. It occurred in the person of the ship's tailor, who, while washing his clothes, suddenly fell back insensible. His pulse was full, slow, and laboured; the breathing stertorous and whiffing, and the pupils contracted to points. He was a man of sober habits, and generally in good health, but had for some little time previously been somewhat desponding. He died in about twenty minutes. On post-mortem examination of the cranium, much blood was found in the cavity of the skull, and also in the ventricles. A large cavity was found in the pons Varolii filled with blood. The cavity seemed to be of perfectly recent formation, as on microscopical examination, no diseased circumjacent cerebral substance could be found.

Eight cases of delirium tremens were under treatment. Of these three occurred in the persons of quarter-deck officers; one in a leading seaman; one in an able seaman; two in stokers, and in one case the rating is not given.

Diseases of the Respiratory Organs.—There was a considerable increase in the ratios of cases and of mortality under this head compared with the preceding year, but the invaliding rate was lower. One hundred and eleven cases of various forms of inflammatory disease of the lungs and pleura were under treatment, and of these four were invalided, and five terminated fatally. Of thirty-one cases of phthisis, thirteen were invalided, and eleven proved fatal. Several of the vessels suffered a good deal from catarrhal complaints, and in the Lady quarter of the year, shortly after leaving Barbadoes, the Urgent was visited by an epidemic of influenza. The surgeon says:—

"On the 17th of March, we arrived at Barbadoes from St. Vincent, Cape de Verd Islands, having experienced fine weather during the passage. At Barbadoes we had a slight increase of temperature, the thermometer going up to 82°, having previously been 78°. We remained there only twenty-four hours, during which time the wind was S.E. We then left for Jamaica, and had a N.E. wind. From the 17th to the 22nd a considerable quantity of rain fell in frequent and heavy showers. The exact amount of dampness contained in the atmosphere I had no instrument to show, but it was the only appreciable cause to assign for an outbreak of influenza which occurred at the time. Men and officers were, many of them, affected, and I found

found it necessary to put twenty on the sick list. The symptoms generally were those of genuine influenza, viz., severe frontal headache, sneezing, running from the eyes, and a great feeling of lassitude, with quick small pulse. In some cases in which the head symptoms were not so severe there was diarrhœa, and in others cough, but all showed considerable irritation of the mucous membranes. A sinapism to the forehead afforded much relief to the severe frontal headache. In cases of diarrhœa Dover's powder was given, and in those suffering from cough, a mixture composed of Tr. camph. co., Tinct. hyosciam, and small doses of Antim. pot. tart. All had sudorifics at bedtime. Generally three days after the seizure they had quinine, and were allowed their grog. They all recovered in a few days without any bad sequela. Only one stoker came before me the whole time. This may probably be accounted for by their being less exposed to the atmosphere than the men working on deck. The troops on board were black, and it is rather curious that scarcely a case occurred amongst them. This might also have been from their non-exposure, as they were not obliged to keep watch."

Diseases of the Heart and Bloodvessels.—There is a slight reduction in the various ratios coming under this head, compared with the preceding year. Seventy-six cases of various forms of disease came under treatment, of which ten cases of disease of the heart, four of varix, and one of aneurism were invalided; and one of disease of the heart, and one of aneurism proved fatal.

The fatal case of heart disease occurred in the person of a leading seaman of the Galatea, who was discharged to Plymouth Hospital on the 5th of January for bronchitis. He had had cough and dyspnœa some months previously. On admisson, to hospital there was increased cardiac dulness, with heaving action of the heart; he also had all the physical signs of phthisis in both lungs. He gradually sank, becoming greatly emaciated, and suffering much from dyspnœa. On post-mortem examination of the body, calcareous concretions were found in both lungs, with considerable effusion of recent date into the right pleura. The heart was large and fatty; its chambers were dilated, and the aortic valves incompetent. The liver was large, and myristicated. The right suprarenal capsule was also enlarged. The skin was bronzed.

The fatal case of aneurism occurred in the person of a stoker of the Eclipse. Its history, with the appearances

 found

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found on post-mortem examination of the body, are thus given by the surgeon* of the ship:—

" . . . . . æt. 27, has been twice lately on the sick-list; the first time for a very mild attack of simple continued fever, and the second for diarrhœa. It was thought that during the second illness he exaggerated his symptoms a good deal. On the present occasion he was suddenly seized while chewing some biscuit at 9.15 p.m. of the 15th December, with severe sharp pain across the upper part of the chest, extending from one shoulder to the other, and around the root of the neck. He described the feeling as that of being squeezed or gripped inwardly. The chest sounded well on percussion; there was no local heat in the affected parts, but he stated that the upper pectoral and lower cervical muscles felt slightly tender on sudden deep pressure being made. The pulse was 68 to 70, regular and of good strength; the tongue clean and moist; the bowels acting regularly. No headache nor pain, nor distress of any kind about the heart complained of. There was tendency to sickness; the pupils were active, and the intellect clear. He was ordered an anodyne draught composed of half a drachm each of laudanum and æther, and a mustard plaster across the top of the chest.—4th, 9 a.m. Slept at intervals during the night, felt the pain relieved for a short time, but it recurred occasionally, lasting only a few minutes at a time; is easy at present; does not look ill, nor has he any clearly marked symptom of active disease. Percussion of chest clear; heart sounds soft and prolonged. As there was no cardiac disturbance nor distress complained of, and having stated that seven years ago he was in hospital for rheumatism, the slight abnormality in the cardiac sounds was considered an old result of that rheumatic attack. The respirations were full, deep, and free. He was recommended to get up and keep gently occupied.—12 noon. Has a severe attack of the pain, which he vaguely refers to the lower and back part of the neck, stretching downwards and backwards between the shoulders.—5 p.m. Is dull and languid; free from pain; breathing natural; pulse tranquil, about 70, full and soft; not suffering any pain; expression of countenance not indicative of distress; feels nausea. Capiat calomel, gr. vi., et haust. effervesc. salin. statim.—9.30. p.m. Heard making a noise in his hammock; gently lowered down, and found to be dying. Expired very suddenly from rapid failure of the heart's action.

Post-mortem examination nine hours afterwards. Body, that of a well-nourished man, with good development of muscle. Lungs healthy. Old thin firm adhesions uniting opposite pleural surfaces of lower half of left side. On opening the pericardium, the heart was observed to be thinly covered with a soft coagulum of blood, and there were besides a few ounces of red fluid in the sac. The heart itself was large, its muscular structure pale

* Surgeon S. A. Willis, M.D.

pale and soft, with an excess of fat about it, and weighed, when free of blood, 18½ ounces. The aorta seemed unduly wide; I should say, diffusely dilated, its coats thin and friable, and immediately above one of the valves, about the one-eighth of an inch, there was a small jagged opening very much resembling what would be caused by the prod of a nail. This opening or slit only extended through the inner and middle coats, the outer one, widely around the opening, was detached from the middle coat, dissected off it, as it were, and had a small dark ecchymosed, softened, and partially disorganised spot directly opposite the opening, through which the blood had evidently made its way into the pericardium. The aortic valves were rough and thickened, but seemed of normal size."

Diseases of the Alimentary Canal.—There was a reduction in the ratio of cases coming under this head compared with the preceding year, equal to 51·9 per 1,000 of mean force. There was also a reduction in the invaliding and death rates. The decrease in the ratio of cases was almost entirely attributable to the less prevalence of cases of diarrhœa.

A fatal case of gastritis occurred in the person of a stoker of the Megæra. The event happened when he was on leave, and it is stated to have been occasioned by "inflammation of the mucous membrane of the stomach, brought on by over indulgence in alcoholic drink."

Of thirteen cases of dysentery that were under treatment, three were invalided and one proved fatal. This occurred in the person of a supernumerary from the Perseus, taking a passage in the Orontes to England. He was admitted to the sick-list on the 17th of February with a small ulcer on the anterior aspect of the right leg. He was very anæmic and debilitated, and two days afterwards complained of looseness of the bowels, from which he had previously suffered in China. Under the use of astringents and opiates the looseness ceased for a time, but soon recurred and with renewed violence, attended with great emaciation, anorexia, and daily increasing debility, the evacuations being feculent with shreds of lymph. The treatment consisted of ipecacuan, quinine, and opiates by mouth, and enemata of chlorodyne and sulphate of copper, but the purging continued and increased until the 4th of April, when he expired.

Diseases of the Genito-Urinary Organs.—There was a reduction in the ratio of cases coming under this head, compared

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pared with the preceding year, equal to 40·1 per 1,000 of mean force. The invaliding rate was, however, slightly increased, and there was one death; whereas there was no mortality from these diseases in 1865. The reduction in the ratio of cases is accounted for by the less prevalence of syphilitic diseases. In 1865 the ratio of cases of syphilis was 130·9, per 1,000, whereas in the present year it was only 98·1 per 1,000.

A case of disease of the kidneys and bladder proved fatal in Plymouth Hospital in the person of an officer of the Barracouta. When admitted to hospital, on the 23rd of April, he was in a state of extreme debility and exhaustion. He had been the subject of urinary fistula since 1863, depending upon a close stricture of the urethra. The urine was constantly dribbling away from an opening behind the scrotum, and was highly ammoniacal. He had constant and distressing irritability of the stomach, rejecting everything directly it was taken. He sank rapidly, and died on the 26th of April. On post-mortem examination of the body, a large abscess was found in the pelvic cavity, and in the walls of the bladder; there was also extensive disease of the kidneys.

There is not much to be said with regard to the cases of venereal disease that were under treatment. There were altogether 370 cases of primary syphilis, and 129 of the secondary form of the disease under treatment; and of these five cases of secondary syphilis were invalided. Each case of primary syphilis was on an average upwards of forty-three days under treatment, on board ship and in hospital, and each case of secondary syphilis thirty-three days. Of 204 cases of gonorrhœa which were under treatment, the average duration of each was a little over sixteen days.

In remarking on the cases of syphilis which occurred in the Endymion, the surgeon* says:—

"The mercurial mode of treating primary syphilis is the only one that I have followed for several years; and from the conclusions I have formed on the subject, I would consider that I was trifling with a patient's health if I adopted any other in the present state of our knowledge. If the controversy between the advocates of the mercurial and non-mercurial plans of treatment did good in preventing the misery that resulted from the abuse of this mineral at the

* Surgeon W. E. O'Brien.

the time, it is counterbalanced in the present day by the evil that results through discarding it so much from modern practice. Without any settled ideas on the subject, I followed both plans indiscriminately for some years, with the sole wish of arriving at some satisfactory conclusion for myself; selecting cases as similar as possible for the purpose. The mercurial plan of treatment had the decided advantage in preventing the secondary effects of the disease. For the last fifteen years I have steadily prescribed the use of mercury in the treatment of primary syphilis with the greatest advantage.

"The old plan of endeavouring to get the system under the peculiar effects of mercury as quickly as possible is in my opinion quite erroneous, and opposed to the practice that I have found most successful. Coinciding to some extent with the opinion of Hunter, that if the first set of absorbent glands through which the venereal virus has to pass to get into the system could be completely occupied by mercury previous to the absorption of the syphilitic poison, the latter would become neutralized in the glands, and be rendered harmless; I so far follow his practice in this respect, that I order the mercurial ointment to be applied to the inguinal region for some days, with the hope it may have the desired effect. The result has been most satisfactory.. Looking back for a long period of years, I can trace several cases of a most formidable nature thus treated, in whom not a trace of the disease has since manifested itself. · As the introduction of mercury into the system for a lengthened period cannot be so well regulated in this manner as by the mouth, two grains of pil. hydrarg.; or three grains of Hyd. c. cretâ, are given three times daily, until its specific effects are produced on the mouth. The introduction of mercury is continued for fourteen days at the least, and is often extended to twenty-one. Severe salivation is avoided by carefully watching the effect produced on the mouth, and diminishing the frequency of the dose, or intermitting it for some days if requisite. I always combine the mercurial preparation with antimonial powder, and the compound powder of ipecacuanha, as I believe they tend to diffuse the mercury through the system, more equally than when it is given by itself. I also believe that the saline preparations of mercury may produce severe salivation and pass out of the system without producing any effect on the specific poison; and this is a strong reason against the administration of the preparation of iodine at the same time that mercury is given, with the intention of destroying the syphilitic virus.

"As this is not a place to enter into many of the interesting details of syphilis and its treatment, I have confined my remarks to a general outline of the subject. At the same time I consider it only right to call attention to a subject of so much importance to the Navy, when I find such a large amount of secondary syphilis existing among the crew of this ship."

Rheumatism.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year.

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The ratio of invaliding, however, was much higher. Of 519 cases of the disease that were under treatment, twenty-three were invalided. The average duration of each case on board ship and in hospital was between eighteen and nineteen days.

Wounds and Injuries.—Three men were killed. One by a blow from the topgallant-mast, which appears to have caused concussion of the brain and spine; one by having his skull fractured by a blow from the topgallant cross-trees; and one by falling from aloft and sustaining fracture of the skull. Eight men were drowned: one on the foundering of the ship in which he was serving; one is supposed to have jumped overboard, with suicidal intention; one was found missing at sea; one was washed off the jibboom; and four fell overboard.

A boy was accidentally poisoned by opium. He was under treatment, and slept in the sick-bay; and during the night of the 21st of September, getting possession of a bottle containing spirits and opium, in the process of making laudanum, swallowed about five ounces of the fluid. There seems to have been little doubt that, having seen the large quantity of spirit used in making the preparation, he thought he might take some of it with impunity, although the bottle was labelled "Poison," and kept apart from the other medicines. From the large quantity of the poison swallowed he must have at once sunk into a comatose state, in which he continued until the morning of the 22nd, when his condition was discovered, and when medical aid could have been of little avail.

There were forty-six deaths altogether, thirty-four being from various forms of disease, and twelve from wounds and injuries, drowning, and accidental poisoning. The total death-rate was 9· per 1,000 of mean force, which is an increase, compared with the preceding year, equal to 2· per 1,000.

Invalided.—Three persons were invalided for the sequelæ of fever; twenty-three for diseases of the brain and nervous system; seventeen for diseases of the respiratory organs; fifteen for diseases of the heart and bloodvessels; four for diseases of the alimentary canal; twelve for diseases of the genito-urinary organs; twenty-three for rheumatism; one for

for gout; three for diseases of the bones and joints; nine for diseases of the special senses; twenty for diseases of the skin and cellular tissue; ten for diseases not classed; and thirty for wounds and injuries and hernia. The total number invalided was 170, which is in the ratio of 33·4 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 7·2 per 1,000. Irregular Force.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	170	33·4	2	·3	4	·7
Intermittent Fever	54	10·6	1	·1	—	—
Small Pox	16	3·1	—	—	1	·1
Measles	7	1·3	—	—	—	—
Scarlatina	6	1·1	—	—	—	—
Vaccinia	2	·3	—	—	—	—
Disease of the Brain	7	1·3	2	·3	3	·5
Apoplexy	1	·1	—	—	1	·1
Epilepsy	34	6·6	16	3·1	—	—
Paralysis	5	·9	2	·3	—	—
Insanity	2	·3	—	—	—	—
Delirium Tremens	8	1·5	—	—	—	—
Neuralgia	29	5·7	—	—	—	—
Vertigo	11	2·1	3	·5	—	—
Insolation	2	·3	—	—	—	—
Inflammation of the Lungs and Pleura	111	21·8	4	·7	5	·9
Phthisis and Hæmoptysis	31	6·1	13	2·5	11	2·1
Influenza and Catarrh	897	176·5	—	—	—	—
Cynanche	202	39·7	—	—	—	—
Asthma	1	·1	—	—	—	—
Bronchocele	1	·1	—	—	—	—
Disease of the Heart, Functional and Organic	42	8·2	10	1·9	1	·1
Hæmorrhoids	20	3·9	—	—	—	—
Varix	12	2·3	4	·7	—	—
Aneurism	2	·3	1	·1	1	·1
Disease of the Stomach and Bowels	12	2·3	1	·1	1	·1
Dysentery	13	2·5	3	·5	1	·1
Diarrhœa	426	83·8	—	—	—	—
Constipation and Colic	89	17·5	—	—	—	—
Disease of the Liver	17	3·3	—	—	1	·1

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Jaundice	7	1·3	—	—	—	—
Splenitis	2	·3	—	—	—	—
Disease of the Bladder and Kidneys	9	1·7	2	·3	1	·1
Syphilis, Primary	370	72·8	—	—	—	—
Do. Secondary	129	25·3	5	·9	—	—
Gonorrhœa	204	40·1	—	—	—	—
Orchitis	123	24·2	2	·3	—	—
Stricture	25	4·9	2	·3	—	—
Incontinence of Urine, &c.	2	·3	1	·1	—	—
Rheumatism	519	102·1	23	4·5	—	—
Gout	7	1·3	1	·1	—	—
Disease of the Bones and Joints	29	5·7	3	·5	—	—
Inflammation of the Eyes	86	16·9	3	·5	—	—
Amaurosis and Cataract	6	1·1	3	·5	—	—
Otitis and Deafness	28	5·5	3	·5	—	—
Erysipelas	4	·7	-	-	2	·3
Scrofula	6	1·1	4	·7	—	—
Bubo (*Symp.*)	107	21·	—	—	—	—
Phlegmon and Abscess	1,520	299·2	5	·9	—	—
Ulcer	381	75·	9	1·7	—	—
Psora	74	14·5	—	—	—	—
Eruptions, &c.	94	18·5	2	·3	—	—
Dyspepsia and Debility	328	64·5	7	1·3	—	—
Dropsy	12	2·3	—	—	—	—
Worms	8	1·5	—	—	—	—
Headache	65	12·7	3	·5	—	—
Purpura	1	·1	—	—	—	—
Pyæmia	-	-	-	-	1	·1
Wounds and Injuries	1,579	310·8	19	3·7	3	·5
Burns and Scalds	87	17·1	—	—	—	—
Hernia	22	4·3	11	2·1	—	—
Drowned	-	-	-	-	8	1·5
Poisoning	2	·3	-	-	1	·1
Submersion	1	·1	—	—	—	—
TOTAL	8,067	1587·9	170	33·4	46	9·

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE, and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	2,068	1,234	3,302	9·	1·7
Intermittent Fever	417	213	630	1·7	·3
Small Pox	81	138	219	·6	·1
Measles	13	32	45	·1	—
Scarlatina	14	306	320	·8	·1
Vaccinia	14	-	14	—	—
Disease of the Brain	68	64	132	·3	—
Apoplexy	1	26	27	—	—
Epilepsy	305	136	441	1·2	·2
Paralysis	67	312	379	1·	·1
Insanity	18	195	213	·5	—
Delirium Tremens	76	81	157	·4	—
Neuralgia	215	76	291	·7	·1
Vertigo	54	123	177	·4	—
Insolation	34	17	51	·1	—
Inflammation of the Lungs and Pleura	1,910	2,245	4,155	11·3	2·2
Phthisis and Hæmoptysis	871	2,136	3,007	8·2	1·6
Influenza and Catarrh	5,511	778	6,289	17·2	3·3
Cynanche	1,419	227	1,646	4·5	·8
Asthma	-	8	8	—	—
Bronchocele	12	6	18	—	—
Disease of the Heart, Functional and Organic	687	855	1,542	4·2	·8
Hæmorrhoids	209	40	249	·6	·1
Varix	128	73	201	·5	—
Aneurism	41	-	41	·1	—
Disease of the Stomach and Bowels	206	130	336	·9	·1
Dysentery	285	122	407	1·1	·2
Diarrhœa	2,352	355	2,707	7·4	1·4
Constipation and Colic	425	35	460	1·2	·2
Disease of the Liver	255	247	502	1·3	·2

Table, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Jaundice	120	70	190	·5	—
Splenitis	112	6	118	·3	—
Disease of the Bladder and Kidneys	160	134	294	·8	·1
Syphilis, Primary	7,528	8,495	16,023	43·8	6·6
Do. Secondary	2,480	1,779	4,259	11·6	2·2
Gonorrhœa	2,686	695	3,381	9·2	1·8
Orchitis	2,005	587	2,592	7·1	1·3
Stricture	218	446	664	1·8	·3
Incontinence of Urine, &c.	12	50	62	·1	—
Rheumatism	6,570	3,451	10,021	27·4	5·3
Gout	55	36	91	·2	—
Disease of the Bones and Joints	378	437	815	2·2	·4
Inflammation of the Eyes	851	501	1,352	3·7	·7
Amaurosis and Cataract	41	56	97	·2	—
Otitis and Deafness	241	130	371	1·	·1
Erysipelas	14	285	299	·8	·1
Scrofula	212	247	459	1·2	·2
Bubo (*Symp.*)	2,545	698	3,243	8·8	1·7
Phlegmon and Abscess	12,866	1,648	14,514	39·7	7·8
Ulcer	6,690	3,028	9,718	26·6	5·2
Psora	628	4	632	1·7	·3
Eruptions, &c.	1,201	713	1,914	5·2	1·
Dyspepsia and Debility	2,589	844	3,433	9·4	1·8
Dropsy	89	113	202	·5	—
Worms	80	-	80	·2	—
Headache	428	41	469	1·2	·2
Purpura	11	30	41	·1	—
Wounds and Injuries	15,452	2,442	17,894	49·	9·6
Burns and Scalds	1,183	53	1,236	3·3	·6
Hernia	419	9	428	1·1	·2
Poisoning	30	-	30	—	—
Submersion	2	-	2	—	—
TOTAL	85,652	37,238	122,890	336·6	66·2

TABLE, No. 3.

SHOWING the Number INVALIDED from each Ship

CAUSE of INVALIDING.	Antelope.	Barracouta.	Basilisk.	Bristol.	Cameleon.	Challenger.	Conqueror.	Doris.	Endymion.	Favorite.	Icarus.	Industry.	Leopard.	Malacca.
Continued and Remittent Fever	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Intermittent Fever	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Brain	–	1	–	–	–	–	–	–	–	–	–	–	–	–
Epilepsy	2	–	–	–	–	–	–	1	3	–	–	–	–	1
Paralysis	–	–	1	–	–	–	–	–	–	–	–	–	1	–
Vertigo	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura	–	–	–	–	–	–	–	1	–	–	–	–	–	–
Phthisis and Hæmoptysis	1	–	–	–	–	–	–	–	1	–	–	–	–	–
Disease of the Heart, Functional and Organic	–	–	–	–	–	–	2	–	–	3	–	1	–	–
Aneurism	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Varix	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Inflammation of the Stomach and Bowels	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dysentery	–	–	–	–	–	–	2	–	–	–	–	–	–	–
Inflammation of the Kidneys and Bladder	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Syphilis, Secondary	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Orchitis	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Stricture	–	–	–	–	–	–	–	–	–	–	1	–	–	–
Incontinence of Urine, &c.	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Rheumatism	–	–	–	–	–	–	–	3	–	1	–	–	–	3
Gout	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Diseases of the Bones and Joints	–	–	–	–	2	–	–	–	–	–	–	–	–	–
Inflammation of the Eyes	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Amaurosis and Cataract	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Otitis and Deafness	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Scrofula	–	1	–	–	–	–	–	–	–	–	–	–	–	–
Abscess	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ulcer	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Eruptions, &c.	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dyspepsia and Debility	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Headache, &c.	–	–	–	1	–	1	–	–	–	–	–	–	–	–
Wounds	–	–	1	1	–	–	2	1	–	–	–	–	–	–
Hernia	–	–	–	–	–	1	–	–	–	–	–	–	–	1
TOTAL	3	2	2	4	2	2	6	6	4	4	2	2	1	7

a Hæmatemesis.

- - - - - - - - - TABLE, No. 3.

- - - employed in the IRREGULAR FORCE.

Meeanee.	Megæra.	Nassau.	Oberon.	Ocean.	Orontes.	Peterel.	Racoon.	Salamis.	Severn.	Simoom.	Star.	Stromboli.	Supply.	Tamar.	Terrible.	Topaze.	Tribune.	Urgent.	Zealous.	TOTAL.
–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
1	–	–	–	–	–	–	1	–	–	–	1	–	2	3	1	–	–	–	–	16
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	1	–	–	–	3
2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	4
–	–	–	–	–	–	1	–	–	–	1	1	–	–	3	1	2	1	1	–	13
–	1	–	–	–	–	–	–	–	1	1	–	–	–	–	1	–	–	–	–	10
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	1	4
–	–	–	–	–	–	–	*a*1	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	3
–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	2	–	–	–	–	5
–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	2
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	–	–	–	1	7	–	2	2	–	–	–	–	–	–	3	–	–	–	–	23
–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	3
1	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	1	3
–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	1	–	–	–	4
1	–	–	–	–	1	–	1	–	–	–	–	–	–	–	1	*b*1	–	–	–	5
1	–	1	–	–	2	–	–	–	–	–	–	–	–	2	1	1	–	–	–	9
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	2
1	–	–	–	–	–	–	–	–	–	1	–	–	–	2	–	–	–	1	–	7
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	3
1	1	–	1	1	1	–	1	1	–	1	1	1	–	1	–	1	1	1	–	19
–	–	2	–	–	1	–	1	1	–	–	–	–	–	2	1	–	–	1	–	11
9	3	3	2	2	19	1	9	4	2	6	5	1	2	15	16	11	4	7	2	170

b Fistula.

TABLE, No. 4. - - - - - - -

SHOWING the Number of DEATHS in each Ship - - - -

CAUSE OF DEATH.	Amazon.	Antelope.	Archer.	Barracouta.	Bristol.	Cameleon.	Challenger.	Curaçoa.	Doris.	Eclipse.	Galaten.
Continued and Remittent Fever	–	–	–	–	1	–	–	–	–	–	–
Small-pox - - - - -	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Brain -	–	1	–	–	–	–	–	–	–	–	1
Apoplexy - - - - -	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura - - - -	–	–	–	–	–	1	–	–	–	–	–
Phthisis - - - - - -	–	–	1	–	1	–	–	1	–	–	–
Disease of the Heart - -	–	–	–	–	–	–	–	–	–	–	1
Aneurism - - - - -	–	–	–	–	–	–	–	–	–	1	–
Gastritis - - - - -	–	–	–	–	–	–	–	–	–	–	–
Dysentery - - - - -	–	–	–	–	–	–	–	–	–	–	–
Disease of the Liver - -	–	–	–	–	–	–	–	–	–	–	–
Nephritis - - - - -	–	–	–	1	–	–	–	–	–	–	–
Erysipelas - - - - -	–	–	–	–	–	–	–	–	–	–	–
Præmia - - - - -	–	–	–	–	–	–	–	–	–	–	–
Wounds and Injuries - -	–	–	–	–	–	–	–	–	–	–	–
Drowned - - - - -	1	–	–	–	–	–	–	–	1	–	–
Poisoning by Opium - -	–	–	–	–	–	–	1	–	–	–	–
TOTAL - - -	1	1	1	1	2	1	1	1	1	1	2

- - - - - - - - TABLE, No. 4.

- - - - - - employed in the IRREGULAR FORCE.

Industry.	Leander.	Malacca.	Marines (Japan).	Meeanee.	Megæra.	Nassau.	Oberon.	Ocean.	Orontes.	Pearl.	Satellite.	Severn.	Stromboli.	Tamar.	Topaze.	Tribune.	Urgent.	Vixen.	TOTAL.
–	–	–	–	2	–	–	–	–	–	–	–	1	1	–	–	–	–	–	4
–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
–	–	–	–	–	–	–	–	2	–	–	1	–	–	1	–	–	–	–	5
1	1	–	2	–	–	–	1	–	–	–	–	1	–	1	1	–	–	–	11
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
–	–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	1	–	–	3
–	1	–	–	–	–	1	–	–	1	1	–	–	–	–	1	–	–	1	8
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	2	1	2	2	1	1	1	4	3	2	1	1	1	4	3	1	1	1	46

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Cases; the Total Number of Days' Sickness on Board; the Average Number of Men Sick Daily, in each SHIP, and the Number Discharged to Hospital.

C. Commissioned. D. Returns defective. P. O. Paid off. S. C. Station changed.

RATE, &c.	NAME OF SHIP.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.	Period.	Average Complement.	Average Complement Corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
Ironclad	Favorite C.	Sheerness	8 Feb. 1866	10	2,094	S. 400	8 Feb. to 30 June	265	105	217	2,606	7·1	67·6	13
	Ocean C.	Devonport	30 July 1866	24	4,047	S.1,000	31 July to 31 Dec.	625	260	363	3,341	9·1	35·	38
	Vixen C.	Woolwich	4 Oct. 1866	2	754	S. 160	28 Oct. to 31 Dec.	80	15	31	136	·3	20·	3
	Zealous C.	Devonport	18 Sept. 1866	20	3,716	S. 800	18 Sep. to 31 Dec.	520	150	199	1,736	4·7	31·3	28
Second Rate	Conqueror P. O.	Sheerness	24 Nov. 1863	40	2,845	S. 500	1 Jan. to 21 Feb.	440	65	96	1,475	4·	61·5	21
Third Rate	Meeanee P. O.	Sheerness	20 Nov. 1862	60	2,591	S. 400	1 Jan. to 1 Mar.	650	110	160	2,495	6·8	61·8	29
Fourth Rate	Bristol S.C.	Sheerness	4 Oct. 1865	31	3,027	S. 600	1 Oct. to 31 Dec.	385	95	243	1,571	4·3	45·2	51
	Doris C.	Devonport	5 Feb. 1866	24	2,483	S. 800	8 Feb. to 30 June	560	220	292	2,879	7·8	35·4	52
	Endymion C.	Sheerness	27 Sept. 1866	21	2,486	S. 500	24 Sep. to 31 Dec.	450	120	113	1,169	3·2	26·6	8
	Galatea P. O.	Devonport	16 May 1862	26	3,227	S. 800	1 Jan. to 23 Jan.	520	35	51	341	·9	25·7	20
	Leander P. O.	Sheerness	14 April 1863	39	2,760	S. 400	1 July to 17 Oct.	455	130	229	2,284	6·1	46·9	5
	Severn P. O.	Devonport	19 July 1862	35	2,767	S. 500	1 Jan. to 12 June	500	230	376	4,461	12·2	53·	9
	Topaze C.	Devonport	26 Jan. 1866	31	2,659	S. 600	26 Jan. to 30 June	530	235	509	5,330	14·6	62·1	48
Fifth Rate	Curaçoa S.C.	Portsmouth	22 April 1863	31	1,571	S. 350	1 Oct. to 31 Dec.	320	80	59	782	2·1	26·2	-
	Leopard P. O.	Devonport	11 Oct. 1862	18	1,406	P. 560	1 July to 29 Sept.	320	80	32	897	2·4	30·	4
	Terrible -	Sheerness	28 April 1865	21	1,850	P. 800	Year - - -	315	315	464	5,233	14·3	45·3	36
	Tribune P. O.	Portsmouth	18 Mar. 1862	23	1,570	S. 300	1 Jan. to 16 May	285	105	101	1,277	3·4	32·3	6
Sixth Rate	Archer P. O.	Woolwich	30 Mar. 1863	13	973	S. 202	1 Jan. to 30 Jan.	145	10	20	195	·5	50·	7
	Challenger C.	Sheerness	12 April 1866	18	1,462	S. 400	1 May to 30 Sept.	330	135	317	2,830	7·7	57·	2
	Jason C.	Devonport	7 May 1866	17	1,711	S. 400	7 May to 30 June	225	35	74	472	1·2	34·2	5

	Malacca - - - S. C.	Portsmouth	13 Nov. 1865	13	1,034	S. 200	1 Jan. to 30 June	249	120	280	3,101	8·4	70·	11
	Pearl - - - - C.	Portsmouth	5 May 1866	17	1,469	S. 400	14 May to 30 Sep.	253	90	189	2,159	5·9	65·5	11
	Racoon - P. O., C., D.	Devonport -	3 Nov. 1866	22	1,467	S. 400	Year - - -	300	300	218	2,133	5·8	19·3	44
	Rattlesnake - P. O.	Devonport -	20 Aug. 1862	19	1,705	S. 400	1 Jan. to 6 Feb.	165	20	27	186	·5	25·	2
	Satellite - - - C.	Devonport -	30 Oct 1866	21	1,462	S. 400	8 Nov. to 31 Dec.	310	45	92	608	1·6	35·5	4
Sloop - - -	Amazon - - - C.	Devonport -	30 April 1866	4	1,081	S. 300	30 April to 10 July	-	-	-	-	-	-	-
	Barracouta - - C.	Sheerness -	18 Mar. 1866	6	1,053	P. 300	1 April to 30 June	180	45	61	389	1·	22·2	15
	Basilisk - - S. C.	Sheerness -	16 Sept. 1865	6	1,031	P. 400	1 Jan. to 31 Mar.	180	45	88	643	1·7	37·7	2
	Cameleon - - P. O.	Sheerness -	9 July 1861	17	952	S. 200	1 Jan to 28 April	155	50	87	1,031	2·8	56·	5
	Chanticleer - - P. O.	Portsmouth	11 Dec. 1861	17	950	S. 200	1 Jan. to 20 Feb.	200	30	35	461	1·2	40·	1
	Cruiser - - - C.	Portsmouth	27 July 1866	3	752	S. 60	1 Aug. to 30 Sept.	170	30	23	243	·6	20·	1
	Devastation - P. O.	Woolwich -	12 Dec. 1861	6	1,058	P. 400	1 April to 8 Aug.	145	50	62	735	2·	40·	4
	Icarus - - - C.	Sheerness -	28 Feb. 1866	3	580	S. 150	7 Mar. to 30 Sept.	130	75	129	1,322	3·6	48·	4
	Peterel - - - C.	Devonport -	2 June 1866	3	669	S. 150	2 June to 30 Sept.	110	35	77	691	1·8	51·4	4
	Reindeer - - - C.	Chatham -	30 Oct. 1866	7	958	S. 200	5 Nov. to 31 Dec	145	20	45	202	·5	25·	2
	Rinaldo - - - C.	Portsmouth	1 Nov. 1866	7	951	S. 200	21 Nov. to 31 Dec.	190	20	29	232	·6	30·	3
	Stromboli - - P. O.	Portsmouth	10 Dec. 1861	6	967	P. 280	1 Jan. to 8 June	165	70	139	1,317	3·6	51·4	2
	Virago - - - C.	Sheerness -	Nov. 1866	6	1,059	P. 220	1 Dec. to 31 Dec.	195	15	27	133	·3	20·	5
Gun Vessel - -	Coquette - - - S. C.	Portsmouth	7 April 1862	4	677	S. 200	1 Oct. to 31 Dec.	90	20	49	461	1·2	60·	-
	Dart - - - P. O., C.	Portsmouth	27 Aug. 1866	5	428	S. 80	1 Sept. to 31 Dec.	75	25	57	421	1·1	44·	-
	Eclipse - - - S. C.	Sheerness -	26 Sept. 1862	4	700	S. 200	1 Oct. to 31 Dec.	80	20	56	602	1·6	80·	1
	Griffon - - - C.	Sheerness -	16 June 1866	5	425	S. 80	1 July to 30 Sept.	75	20	51	639	1·7	85·	6
	Mullet - - - C.	Sheerness -	5 May 1866	5	430	S. 80	12 May to 30 June	65	10	10	81	·2	20·	1
	Star - - C., P. O., C.	Sheerness -	22 Jan. 1866	4	695	S. 200	Seven months -	85	50	100	815	2·2	44·	11
		Devonport -	14 Oct. 1866											
Steam Vessel -	Antelope - - - C.	Woolwich -	12 July 1866	3	650	P. 260	12 July to 30 Sept.	112	25	53	501	1·3	52·	3
	Nassau - - - C.	Woolwich -	27 July 1866	5	695	S. 150	27 July to 31 Dec.	90	40	78	654	1·7	42·5	8
	Oberon - - - S. C.	Sheerness -	17 Nov. 1865	3	649	P. 260	1 Jan. to 30 June	90	45	99	1,159	3·1	68·8	11
	Salamis - - - C.	Portsmouth	1 Jan. 1866	2	835	P. 250	1 Jan. to 30 June	85	45	106	847	2·3	51·1	3
	Swallow - - P. O.	Sheerness -	21 Nov. 1861	5	486	S. 60	1 July to 30 Sept.	85	20	20	487	1·3	65·	2
	Sylvia - - - - C.	Woolwich -	12 Oct. 1866	5	695	S. 150	16 Oct. to 31 Dec.	90	20	24	265	·7	35·	2
Troop Ship -	Orontes - - - -	Devonport -	23 April 1863	4	2,812	S. 500	Year - - -	350	350	572	7,865	21·5	61·4	55
	Simoom - - - C.	Portsmouth	2 Feb. 1866	4	1,990	S. 400	2 Feb. to 31 Dec.	175	160	237	3,159	8·6	53·7	5
	Tamar - - - -	Sheerness -	10 Oct. 1863	2	2,812	S. 500	Year - - -	205	205	359	4,166	11·4	55·6	31
	Urgent - - - -	Portsmouth	27 July 1864	4	1,981	S. 400	Year - - -	140	140	329	3,636	9·9	70·7	15
Store Ship - -	Industry - - - -	Woolwich -	25 April 1866	2	638	S. 80	Year - - -	65	65	85	595	1·6	24·6	5
	Megæra - - - -	Devonport -	18 Jan. 1865	6	1,392	S. 350	Year - - -	160	160	137	1,809	4·9	30·6	11
	Supply - - - D.	Woolwich -	18 Nov. 1865	4	638	S. 80	Eight months -	55	35	64	300	·9	25·7	4
Marines (Japan)	- - - -	- - -	-	-	-	-	1 Jan. to 30 Jan.	405	35	27	463	1·2	84·2	2

TABLE, No. 6.

SHOWING the Number of CASES of all DISEASES and

DISEASE OR INJURY.	Artelope.	Archer.	Barracouta.	Basilisk.	Bristol.	Cameleon.	Challenger.	Chanticleer.	Conqueror.	Coquette.	Cruiser.	Curaçoa.	Dart.
Continued and Remittent Fever	–	–	1	7	7	–	–	–	–	3	–	2	6
Intermittent Fever	–	–	1	–	–	–	2	–	1	2	–	–	–
Small Pox	–	–	–	–	–	–	–	–	–	–	–	–	–
Scarlatina	–	–	–	–	–	–	–	–	–	–	–	–	–
Vaccinia	–	–	–	–	–	–	1	–	–	–	–	–	–
Measles	–	–	–	–	–	–	1	–	–	–	–	–	–
Disease of the Brain	1	–	–	–	–	–	–	–	–	–	–	–	–
Insanity	–	–	–	–	–	–	–	–	–	–	–	–	–
Apoplexy	–	–	–	–	–	–	–	–	–	–	–	–	–
Epilepsy	2	–	–	–	–	–	–	–	1	–	–	–	–
Paralysis	–	–	–	1	–	–	–	–	–	–	–	–	–
Delirium Tremens	–	–	–	–	–	–	–	–	–	–	–	–	1
Neuralgia	–	–	–	–	1	–	1	–	–	–	–	–	–
Vertigo	–	–	–	–	–	–	–	–	–	–	–	–	–
Insolation	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the *Lungs* and Pleura	–	–	–	1	25	1	2	–	2	–	–	–	–
Phthisis and Hæmoptysis	1	–	–	–	1	–	–	–	–	–	–	–	–
Cynanche	–	–	2	–	9	3	6	–	3	2	2	3	–
Influenza and Catarrh	–	4	–	3	34	14	66	10	15	1	1	9	1
Asthma	–	–	–	–	–	–	–	–	–	–	–	–	–
Bronchocele	–	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Heart, Functional and Organic	–	–	–	–	–	2	–	–	2	–	–	–	–
Aneurism	–	–	–	–	–	–	–	–	–	–	–	–	–
Hæmorrhoids	–	–	–	–	–	–	5	–	–	–	–	–	–
Varix	–	–	–	–	–	1	–	–	–	–	–	–	–
Inflammation of the Stomach and Bowels	–	–	–	–	–	–	–	–	–	–	–	–	–
Dysentery	–	–	–	–	–	1	–	–	–	–	1	–	–
Diarrhœa	17	–	1	3	4	6	6	3	14	2	–	2	5
Constipation and Colic	–	–	4	–	6	4	2	–	2	3	2	3	2
Inflammation of the Liver	–	–	1	–	1	–	1	–	–	2	–	–	–
Jaundice	–	–	–	–	–	–	–	–	–	–	–	–	–
Splenitis	–	–	–	–	–	1	–	–	–	–	–	–	–
Inflammation of the Bladder and Kidneys	–	–	–	–	*b* 1	–	–	–	–	–	–	–	–
Syphilis, Primary	3	1	7	–	10	5	13	–	–	–	4	–	2
Ditto – Secondary	2	–	1	4	–	2	–	–	–	–	–	–	1
Gonorrhœa	–	1	2	2	14	–	6	–	–	–	–	–	2
Orchitis	–	–	1	*c* 2	2	1	3	–	1	1	–	2	–
Stricture of the Urethra	–	1	–	1	1	–	–	1	–	–	–	–	–
Incontinence of Urine, &c.	–	–	–	–	–	–	–	–	–	–	–	–	–
Rheumatism	1	2	1	2	15	14	20	1	5	2	2	7	1
Gout	2	–	–	–	–	–	–	–	–	–	–	–	–
Diseases of the Bones and Joints	–	–	–	–	–	1	3	–	1	–	–	–	1
Inflammation of the Eyes	–	–	–	2	2	1	8	–	–	3	–	1	1
Amaurosis and Cataract	–	1	–	–	–	–	–	–	1	–	–	–	–
Otitis and Deafness	1	–	–	–	–	–	4	–	–	–	–	–	2
Erysipelas	–	–	–	–	–	–	–	–	–	1	–	–	–
Scrofula	–	–	–	–	1	–	–	–	–	–	–	–	–
Bubo (*Symp.*)	–	–	–	1	8	2	7	–	–	1	–	1	1
Phlegmon and Abscess	6	4	16	31	30	12	67	9	10	9	3	11	14
Ulcer	2	–	2	1	23	4	11	3	9	1	1	4	2
Psora	–	–	–	–	5	–	–	–	–	–	–	–	–
Eruptions, &c.	2	–	3	1	2	–	6	–	–	–	–	–	–
Dyspepsia and Debility	4	–	6	1	–	2	8	1	–	6	–	1	1
Purpura	–	–	–	–	–	–	–	–	–	–	–	–	–
Headache, &c.	–	–	–	–	1	2	4	1	–	–	–	–	–
Dropsy	–	–	–	2	–	–	–	–	–	–	–	–	1
Worms	–	–	–	–	–	–	–	–	–	–	–	–	–
Wounds and Injuries	8	6	11	23	40	6	56	6	29	9	6	12	13
Burns and Scalds	–	–	–	–	–	–	5	–	–	1	1	1	–
Hernia	–	–	1	–	–	1	2	–	–	–	–	–	–
Submersion	1	–	–	–	–	–	–	–	–	–	–	–	–
Poisoning	–	–	–	–	–	*f* 1	*g* 1	–	–	–	–	–	–
TOTAL	53	20	61	88	243	87	317	35	96	49	23	59	57

a Spinal irritation. *b* Hæmaturia. *c* 1 Hæmatocele. *d* Hemeralopia.

TABLE, No. 6.

INJURIES in each SHIP employed in the IRREGULAR FORCE.

Devastation.	Doris.	Eclipse.	Endymion.	Favorite.	Galatea.	Griffon.	Icarus.	Industry.	Jason.	Leander.	Leopard.	Malacca.	Marines, Japan.	Meeanee.	Megæra.
–	1	14	1	–	–	–	5	–	–	3	–	–	–	2	–
–	–	–	2	10	–	–	–	4	–	–	–	–	–	–	–
–	3	–	–	–	–	–	1	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–
–	–	*a* 2	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	2	–	3	–	–	–	1	1	–	–	–	1	–	1	1
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
2	–	–	1	2	–	–	–	1	–	–	–	–	–	1	–
–	–	–	–	1	–	–	–	–	1	1	2	–	–	1	–
1	5	–	–	3	1	–	–	–	3	2	1	1	–	1	–
1	1	2	1	–	1	–	1	1	2	–	1	–	–	–	1
–	3	–	7	6	4	1	3	3	4	9	–	10	–	4	2
8	63	2	3	21	7	2	2	6	11	28	–	22	3	20	10
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
–	1	–	2	3	–	–	–	1	2	–	–	–	–	–	–
–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–
2	1	–	–	–	–	–	–	–	1	–	–	2	–	1	–
–	1	–	–	–	–	–	–	1	–	1	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	2	–	–	–	–	–	4	–	1	–	–	–	–	–
2	7	3	1	8	2	8	2	3	1	15	5	27	–	–	12
–	1	1	–	3	–	–	–	3	1	–	1	4	1	1	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	1	–	–	–	–	–	–	–	1	1	–	–
–	25	–	7	7	–	–	4	4	6	3	1	9	–	6	5
–	–	–	2	2	–	1	1	1	3	8	–	3	–	1	4
–	4	1	1	7	–	–	2	3	4	–	–	5	–	2	–
1	4	2	2	2	–	1	–	–	–	3	1	1	1	2	3
–	3	–	–	–	–	–	2	–	1	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–
15	17	7	8	25	3	3	3	5	5	8	4	17	9	22	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	2	–	–	–	–	–	2	–	–	–	–	–	–	–	–
–	6	–	–	3	–	–	–	–	–	2	–	1	–	3	2
–	*d* 1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	2	–	–	1	–	–	1	–	–	–	–	2	1	1	–
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–
1	5	3	4	5	–	–	1	1	4	–	–	2	–	–	4
11	70	7	10	50	14	15	59	13	7	73	3	56	1	21	30
3	24	–	–	11	3	2	4	3	3	23	1	21	2	3	6
–	–	–	2	2	–	–	2	–	–	–	1	7	–	–	–
–	6	–	4	2	–	–	3	–	4	–	–	6	1	1	–
5	4	–	1	5	–	4	8	10	1	8	1	10	–	10	21
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	1	1	–	–	–	6	4	1	–
–	–	–	–	–	–	–	–	–	2	–	–	–	–	2	–
–	–	–	–	*e* 1	–	–	–	*e* 1	–	–	–	–	–	–	*e* 1
7	25	8	41	34	15	14	20	15	6	35	10	65	1	48	24
3	3	1	1	–	1	–	1	–	–	4	–	–	2	4	1
–	2	–	–	–	–	–	–	–	–	1	–	1	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
62	292	56	113	217	51	51	129	85	74	229	32	280	27	161	137

continued at page 394.

e Tænia. *f* By chloride of zinc. *g* By laudanum.

TABLE, No. 6.—Showing the Number of Cases of all Diseases and - - - -

continued from page 393.

DISEASE OR INJURY.	Mullet.	Nassau.	Oberon.	Ocean.	Orontes.	Pearl.	Peterel.	Racoon.	Rattlesnake.	Reindeer.	Rinaldo.	Salamis.
Continued and Remittent Fever	1	–	–	3	9	–	2	4	–	1	1	8
Intermittent Fever	–	–	1	2	10	3	–	–	–	3	–	–
Small-pox	–	–	–	8	–	–	–	–	–	–	–	–
Scarlatina	–	–	–	–	–	–	–	5	–	–	–	–
Vaccinia	–	–	–	1	–	–	–	–	–	–	–	–
Measles	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Brain	–	–	–	–	–	–	–	–	–	–	–	–
Insanity	–	–	–	–	–	–	–	–	–	–	–	–
Apoplexy	–	–	–	–	–	–	–	–	–	–	–	–
Epilepsy	–	–	2	1	1	1	–	1	–	–	–	–
Paralysis	–	–	1	1	–	–	–	–	–	–	–	–
Delirium Tremens	–	–	–	–	1	–	1	–	–	–	–	2
Neuralgia	–	–	1	1	3	–	–	–	–	–	1	–
Vertigo	–	–	–	–	–	–	–	–	–	–	–	–
Insolation	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura	–	4	2	4	2	–	1	3	–	–	1	1
Phthisis and Hæmoptysis	–	–	2	1	–	–	–	2	–	–	–	–
Cynanche	–	3	–	3	14	2	1	16	–	1	3	1
Influenza and Catarrh	1	4	11	54	56	6	4	10	5	5	5	1
Asthma	–	–	–	–	–	–	–	1	–	–	–	–
Bronchocele	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Heart, Functional and Organic	–	–	1	–	1	4	–	–	–	–	–	–
Aneurism	–	–	–	–	–	–	–	–	–	–	–	–
Hæmorrhoids	–	–	1	1	3	–	–	–	–	–	–	–
Varix	–	–	–	1	–	–	–	–	–	–	–	–
Inflammation of the Stomach and Bowels	–	–	–	*c* 1	–	–	–	–	–	–	–	1
Dysentery	–	–	–	–	2	–	–	–	–	–	–	–
Diarrhœa	–	5	6	24	27	6	1	12	–	–	–	1
Constipation and Colic	–	–	1	4	7	1	–	–	–	1	1	2
Inflammation of the Liver	–	–	–	–	1	1	–	–	–	–	–	1
Jaundice	–	–	–	1	–	1	–	–	–	–	–	–
Splenitis	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Bladder and Kidneys	–	–	–	–	–	–	–	2	–	–	–	*d* 1
Syphilis, Primary	–	2	9	33	36	12	3	10	–	2	5	2
Ditto - Secondary	–	–	2	13	28	–	1	10	–	2	–	–
Gonorrhœa	–	–	4	5	16	9	5	7	–	1	3	2
Orchitis	1	–	5	9	14	4	3	2	–	2	–	*e* 2
Stricture of the Urethra	–	1	1	1	2	1	2	1	–	–	–	–
Incontinence of Urine, &c.	–	–	–	–	–	–	–	–	–	–	–	–
Rheumatism	2	10	14	11	58	6	10	14	4	3	2	6
Gout	–	–	–	–	1	–	–	1	–	–	–	–
Disease of the Bones and Joints	–	–	1	–	2	–	1	–	–	–	–	–
Inflammation of the Eyes	–	–	2	4	9	1	–	3	–	–	–	–
Amaurosis and Cataract	–	–	–	–	1	–	–	–	–	–	–	–
Otitis and Deafness	–	2	–	–	1	1	–	–	–	–	–	1
Erysipelas	–	–	–	–	–	2	–	–	–	–	–	–
Scrofula	–	–	–	1	–	–	–	–	–	–	–	–
Bubo (*Symp.*)	–	–	–	7	9	1	1	5	–	1	1	1
Phlegmon and Abscess	3	18	5	45	56	40	21	40	10	6	2	41
Ulcer	–	2	3	20	19	13	4	15	1	1	1	–
Psora	–	–	1	6	11	–	–	–	1	–	–	–
Eruptions, &c.	–	2	1	2	5	2	–	3	–	–	–	–
Dyspepsia and Debility	–	1	1	21	41	16	2	6	–	7	–	1
Purpura	–	–	–	–	–	–	–	–	–	–	–	–
Headache, &c.	–	–	5	–	5	5	2	–	–	–	–	1
Dropsy	–	–	–	2	–	–	1	–	–	–	–	–
Worms	–	–	2	–	*f* 1	–	–	–	–	–	–	*f* 2
Wounds and Injuries	2	22	14	64	111	48	11	41	7	9	3	25
Burns and Scalds	–	–	–	8	7	3	–	3	–	1	–	2
Hernia	–	2	–	–	2	–	–	1	–	–	–	1
Submersion	–	–	–	–	–	–	–	–	–	–	–	–
Poisoning	–	–	–	–	–	–	–	–	–	–	–	–
TOTAL	10	78	99	363	572	189	77	218	27	45	29	106

a 1 Spinal meningitis. *b* 1 Aphonia. *c* Hæmatemesis.

Injuries in each Ship employed in the Irregular Force—*continued.*

Satellite.	Severn.	Simoom.	Star.	Stromboli.	Supply.	Swallow.	Sylvia.	Tamar.	Terrible.	Topaze.	Tribune.	Urgent.	Virago.	Vixen.	Zealous.	TOTAL.
1	27	21	2	5	5	-	-	6	3	5	-	15	-	-	-	170
-	1	-	1	-	1	1	-	-	3	5	1	-	-	-	-	54
-	-	-	-	-	-	-	-	-	2	2	-	-	-	-	-	16
-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
-	-	-	-	-	-	-	-	-	-	5	-	-	-	-	-	7
-	-	-	-	-	-	-	-	a 2	-	-	1	-	-	-	-	7
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
1	3	-	2	2	2	-	-	3	1	-	-	-	-	1	-	34
-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	5
-	-	-	-	-	-	-	1	-	2	-	-	-	-	-	-	8
1	1	-	3	-	-	1	-	-	6	-	1	1	-	-	-	29
-	-	-	-	-	-	-	1	1	2	1	-	1	-	-	1	11
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
1	6	13	2	2	-	-	-	4	4	2	5	1	-	-	4	111
-	2	-	-	-	-	-	-	2	1	2	-	3	1	-	1	31
3	1	4	1	5	2	1	2	7	20	b 10	2	6	-	-	8	202
3	73	5	5	6	2	2	1	26	74	83	0	63	3	5	9	897
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
3	3	4	-	2	-	-	-	-	6	1	-	4	-	-	-	42
-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	2
-	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	20
-	1	-	-	-	-	-	-	-	1	1	-	3	-	-	1	12
-	1	1	-	-	-	-	-	4	3	-	-	-	-	-	-	12
-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	13
8	13	17	6	17	11	1	2	21	12	14	6	46	2	5	6	426
-	2	-	-	1	1	-	1	4	4	4	3	6	1	-	-	89
-	1	3	-	-	-	-	-	3	-	1	-	-	-	-	-	17
-	-	-	-	-	-	-	-	2	1	-	-	1	-	-	-	7
-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2
-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-	9
5	10	11	5	-	5	-	2	22	14	28	3	3	1	2	23	370
2	12	-	1	-	1	1	-	3	-	7	2	1	2	-	5	129
8	13	1	3	1	1	-	-	31	5	4	4	7	3	3	12	204
1	3	6	4	-	-	1	-	6	3	8	3	3	-	1	6	123
-	2	-	-	-	-	-	-	1	3	-	-	-	-	-	-	25
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
7	15	18	7	5	5	4	2	24	28	13	8	6	1	4	5	519
-	-	-	-	-	-	-	-	1	2	-	-	-	-	-	-	7
-	-	3	1	-	-	-	-	5	-	3	-	2	-	-	1	29
-	-	-	-	2	-	1	2	7	4	10	2	1	-	-	3	86
-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	6
1	1	2	-	-	1	-	-	1	-	1	-	-	-	-	1	28
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
-	-	-	-	-	-	-	-	-	2	-	1	-	-	-	-	6
2	8	-	2	-	-	-	1	2	5	3	2	2	-	1	2	107
14	32	48	20	42	17	2	2	54	124	99	16	55	7	3	27	1,520
4	32	9	4	4	2	-	3	16	3	29	2	9	1	-	12	381
1	-	-	1	-	-	-	-	6	2	23	-	1	-	-	3	74
1	3	-	-	3	1	-	-	8	7	11	3	3	1	-	2	94
3	14	19	2	-	-	3	-	10	19	10	5	19	1	-	9	328
-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
1	1	2	1	-	-	-	-	18	-	-	-	3	-	-	-	65
-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	12
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
19	89	40	25	39	6	2	4	56	91	120	10	• 55	3	6	55	1,579
2	3	9	1	3	-	-	-	4	4	-	1	4	-	-	3	87
-	-	-	-	-	1	-	-	2	1	-	-	3	-	-	-	22
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
92	376	237	100	139	64	20	24	359	464	509	101	329	27	31	199	8,067

d Diabetes. *e* 1 Hæmatocele *f* Tænia.

170—I.

TOTAL FORCE.

Total Force.

In the year 1866 the total force in the service afloat was 49,475, and the total number of cases of disease and injury entered on the sick-list 64,064, which is the ratio of 1313·4, per 1,000, being a decrease, compared with the preceding year, equal to 54·8 per 1,000. In estimating the ratio of cases placed on the sick-list, the total force is taken at 48,775, a deduction to the extent of 700 men being made for the gun-boats in China and elsewhere, which, for want of accommodation, carried no medical officer, and from which, in consequence, no reliable returns of cases could be obtained. As has been explained in a former part of this Report, the officers and men attached to these small gun-boats receive medical attendance from the various men-of-war which may be lying near them, or from private practitioners from the shore. The full force is taken in computing the invaliding and death rates. The total number invalided was 1,698, which is in the ratio of 34·3 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 1·4 per 1,000. There were 509 deaths, of which 393 were from various forms of disease, and 116 from wounds and injuries, and drowning. The ratio of mortality from disease only was 7·9 per 1,000, and from wounds and injuries 2·3, the total death-rate being 10·2 per 1,000 of mean force, which is a decrease, compared with the preceding year, equal to 1·1 per 1,000.

The number of cases of disease and injury on the Home Station per man was ·9; on the Mediterranean Station, 1·4; North America and West Indies, 1·4; South-east Coast of America, 1·5; Pacific, 1·7; West Coast of Africa, 2·; Cape of Good Hope and East Indies, 1·8; China, 1·4; Australia, 1·4; and in the Irregular Force, 1·5; making an average of 1·3 for

1·3 for the Total Force, which is the same as obtained in the preceding year. Total Force.

The lowest sick-rate was on the Home Station, and the highest on the West Coast of Africa. The ratio per 1,000 men sick daily on the Home Station was 42·2; on the Mediterranean, 50·; North America and the West Indies, 49·2; South-east Coast of America, 49·; Pacific, 66·7; West Coast of Africa, 72·1; Cape of Good Hope and East Indies, 71·5; China, 61·5; Australia, 43·7; and in the Irregular Force, 66·2. The average sick-rate of the total force was 50·7 per 1,000; in 1865 it was 53·3.

As compared with the preceding year, the only stations on which there was a reduction in the ratio of invaliding were North America and the West Indies, and the West Coast of Africa. The ratio of invaliding on the Home Station was 26·1 per 1,000 of mean force; Mediterranean, 41·6; North America and West Indies, 27·8; South-east Coast of America, 35·8; Pacific, 33·; West Coast of Africa, 79·7; Cape of Good Hope and East Indies, 43·2; China, 56·7; Australia, 24·4; and in the Irregular Force, 33·4. The total number invalided was 1,698, which is in the ratio of 34·3 per 1,000, being an increase, compared with the preceding year, equal to 1·4 per 1,000.

There was no great reduction or increase in the rate of invaliding on any of the stations compared with the preceding year. That on which there was the greatest reduction was North America and the West Indies; the greatest increase was on the Cape of Good Hope and East Indies. On the former station the reduction was equal to 4·4 per 1,000; and on the latter the increase was to the extent of 9·4.

There was an increase in the ratio of mortality on the Home, Pacific, Cape of Good Hope and East Indies, and Australian Stations, and in the Irregular Force. The largest increase was in the Cape of Good Hope and East Indies, and was entirely attributable to the epidemic of disease which occurred in the Octavia. The death-rate on the Home Station, from disease alone, was 6·4 per 1,000, and from violence, 1·6: on the Mediterranean Station, from disease, 4·1; from violence, 1·2: North America and the West Indies, from disease, 6·8; from violence, 3·3: South-east Coast of America, from disease, 6·6; from violence, 1·6: Pacific, from disease, 5·8; from violence, 2·9: West Coast of Africa, from disease,

Total Force. 23·2; from violence, 2·8: Cape of Good Hope and East Indies, from disease, 16·7; from violence, 4·3: China, from disease, 14·7; from violence, 4·1: Australia, from disease, 9·3; from violence, 5·6: and in the Irregular Force, from disease, 6·6; from violence, 2·3. The total death-rate from disease alone was only 7·9 per 1,000, and from violence 2·3. There were 509 deaths altogether, which is in the ratio of 10·2 per 1,000, being a decrease, compared with the preceding year, equal to 1·1 per 1,000.

As compared with the preceding year, there was a reduction in the death-rate on the Mediterranean Station equal to 2·8 per 1,000; on the North American and West Indian Station, to 2·4; South-east Coast of America, to 3·1; West Coast of Africa, to 22·1; and China, to 4·3. On the Home Station there was an increase to the extent of ·9, per 1,000; on the Pacific, to 1·5; on the Cape of Good Hope and East India Station, to 6·; Australia, to 4·3; and in the Irregular Force, to 2·.

The following Table shows the ratio per 1,000 of mean force, of all cases of disease and injury placed on the sick-list, and of mortality from the various classes of disease on the different stations:—

CLASS OF DISEASE.	Home.		Mediterranean.		North America and West Indies.		South East Coast of America.		Pacific.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Continued and Remittent Fever	11·6	·5	39·1	·7	101·3	·5	40·	·8	170·2	·8
Yellow Fever	–	–	–	–	2·	1·6	–	–	–	–
Intermittent Fever	6·1	–	21·7	–	21·3	–	7·5	–	20·9	–
Eruptive Fevers	8·4	–	·5	–	–	–	20·8	–	13·3	–
Diseases of Brain, Nerves, &c.	11·5	·6	13·4	·9	18·1	1·4	12·5	–	22·5	·8
Diseases of Respiratory Organs	204·7	2·5	242·5	·5	242·6	2·5	207·5	1·6	330·1	2·5
Diseases of Heart and Bloodvessels	10·3	·9	9 9	·3	9·5	·3	18·3	·8	20·	·4
Diseases of Stomach and Bowels	73·2	·7	106·5	·5	107·6	·1	249·1	1·6	98·3	·4
Diseases of Liver, Spleen, &c.	4·2	·2	5·6	–	2·4	–	5·	–	7·9	–
Diseases of Kidneys, Bladder, and Genital Organs	109·6	·2	69·7	–	111·8	–	90·	–	141·4	·4
Diseases of Joints, Muscles, Bones, &c.	64·4	–	79·7	·3	83·	–	77·5	·8	115·	–
Diseases of Senses, Eyes, Ears, &c.	14·1	–	14·6	–	14·1	–	25·8	–	15·4	–
Diseases of Skin, Glandular System, and Cellular Tissue	250·3	·1	440·2	·3	392·1	–	397·5	–	415·	·4
Diseases not specified	43·5	·3	75·3	·1	53·2	–	84·1	·8	64·8	–
Wounds, Accidents, &c.	176·2	1·6	293·2	1·4	272·7	3·3	286·6	1·6	310·	2·9

CLASS OF DISEASE.	West Coast of Africa.		East Indies and Cape of Good Hope.		China.		Australia.		Irregular Force.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Continued and Remittent Fever	308·9	2·9	229·1	4·8	115·2	2·2	22·5	–	33·4	·7
Yellow Fever - - - -	17·8	14·8	–	–	–	–	–	–	–	–
Intermittent Fever - - -	51·7	·5	9·7	–	37·4	–	3·8	–	10·6	–
Eruptive Fevers - - -	·5	–	98·3	4·3	5·9	·2	–	–	6·1	–
Diseases of Brain, Nerves, &c. -	16·6	1·1	21·	2·1	20·	1·7	29·1	·9	19·4	·7
Diseases of Respiratory Organs -	150·	1·7	149·7	2·	128·1	2·9	263·8	5·6	244·6	3·1
Diseases of Heart and Bloodvessels - - - - - -	16·6	·5	10·2	·5	13·8	·4	12·2	·9	14·9	·3
Diseases of Stomach and Bowels	173·8	–	161·6	1·6	190·7	4·6	127·6	–	106·1	·3
Diseases of Liver, Spleen, &c. -	4·1	–	12·9	–	12·6	·7	7·5	·9	5·1	·1
Diseases of Kidneys, Bladder, and Genital Organs - - -	102·3	–	141·	1·	197·4	·7	77·9	–	169·6	·1
Diseases of Joints, Muscles, Bones, &c. - - - - - -	127·3	–	97·8	–	92·1	–	121·1	–	109·2	–
Diseases of Senses, Eyes, Ears, &c.	26·1	–	19·4	–	15·7	–	23·4	–	23·6	–
Diseases of Skin, Glandular System, and Cellular Tissue -	600·	–	493·5	–	327·3	·2	404·6	·9	430·3	·3
Diseases not specified - -	133·9	1·1	138·3	–	85·6	·7	61.9	–	81·4	·1
Wounds, Accidents, &c. - -	337·5	2·9	277·8	4·2	228·4	4·1	342·7	5·6	332·4	3·2

Fevers.—Two thousand nine hundred and ninety-five cases of continued and remittent fever were under treatment during the year, which is in the ratio of 61·4 per 1,000 of mean force, being a decrease compared with the preceding year, equal to 17·1 per 1,000. Of these, sixty were invalided, and forty-eight died, the former being in the ratio of 1·2 per 1,000, and the latter of ·9. There is a slight increase in the invaliding rate, but the ratio of mortality is the same as obtained in the previous year. The average duration of each case on board ship and in hospital, was nearly fourteen days; and in the whole force 112·6 men were, on an average, daily inefficient from these fevers. As usual, the West Coast of Africa stands prominently forward as the station on which these diseases abound most; following this is the Cape of Good Hope and East Indies Station; and third on the list, the Pacific. The largest death-rate occasioned by them was on the Cape of Good Hope and East Indies Station, where, however, the mortality was almost entirely confined to one ship, the Octavia. There was an increase in the ratio of cases of continued and remittent fever on the Pacific Station, to the extent of 90·4 per 1,000; and on the Cape of Good Hope and East Indies to 110·3. In the Pacific, the diseases were chiefly

Total Force. contracted on the Coasts of Mexico and Central South America.

Yellow Fever.—Of this malignant form of fever, forty-one cases occurred in the Total Force; eleven on the North American and West Indian Station, and the remainder on the West Coast of Africa, where it was almost altogether confined to one vessel, the Bristol. It is more than probable, however, that many other cases of a febrile nature which occurred in the vessels in which yellow fever appeared, but which were classed under other heads, were in reality only modifications of that fever; for the mortality—thirty-four deaths out of forty-one cases—is out of all proportion with what is ordinarily known as to the death-rate in yellow fever, and seems to indicate that those cases which proved fatal, or nearly so, were the only ones returned as belonging to the more deadly disease.

Eruptive Fevers.—There was a great increase in the ratio of cases coming under this head, compared with the preceding year, but the death-rate was lower. Two hundred and thirty-nine cases of small-pox were under treatment in the force, of which eight only proved fatal; of these, 165 cases of the disease and six of the deaths occurred in the Octavia, on the East Indian Station. China, which has so frequently furnished epidemics of small-pox to the vessels of the squadron employed there, was particularly free from the disease in 1866, the reduction in the ratio of cases of eruptive fever on that station, compared with the preceding year, being equal to 16·4 per 1,000 of mean force, and the reduction in the death-rate to 2·. On the Home Station there was an increase in the ratio of cases of eruptive fever, to the extent of 3·1 per 1,000, which is almost entirely attributable to a somewhat extensive epidemic of scarlatina which prevailed in the Boscawen; and a great increase in the ratio of cases on the Brazil Station was also attributable to an outbreak of the same form of fever in the Egmont, at Rio de Janeiro.

Diseases of the Brain and Nervous System.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year; but the invaliding rate was somewhat higher. The death-rate was precisely the same as in 1865. There were nine deaths from disease of the brain; sixteen from apoplexy; two from epilepsy; four from paralysis,

lysis, and eleven from delirium tremens. Of this latter form of disease there was a considerable decrease in the ratio of cases under treatment, but the death-rate was double that of the preceding year. Total Force.

Diseases of the Organs of Respiration.—There is very little difference between the various ratios under this head, and those which obtained in the preceding year. There is a slight increase in the ratio of cases. The station which showed the highest ratio of cases was the Pacific, and this was altogether owing to the prevalence of epidemic catarrh in one or two vessels. The stations on which there was an increase in the ratio of cases compared with the preceding year, were the Home, North America and the West Indies, South-east Coast of America, Pacific, and Australian; there was an increase also in the Irregular Force. There was a reduction in the death-rate, however, from these diseases, on the Home Station, the Mediterranean, North America and the West Indies, South-east Coast of America, West Coast of Africa and China.

Diseases of the Heart and Bloodvessels.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, but both the invaliding and death rates were somewhat higher. Of 327 cases of functional and organic disease of the heart, 124 were invalided, and twenty-six terminated fatally. There were six deaths from aneurism, and one from passive hæmorrhage.

Diseases of the Alimentary Canal.—There was a reduction in all the ratios under this head, compared with the preceding year. The mortality from dysentery was precisely the same as in 1865; but from cholera it was reduced by one-half. Of 197 cases of dysentery which were under treatment during the year, twenty-five were invalided, and twenty-two terminated fatally; and of 4,106 cases of diarrhœa, twenty-four were invalided, and one terminated fatally. Ten deaths resulted from twenty-four cases of cholera. Each case of dysentery was, on an average, between twenty-seven and twenty-eight days under treatment on board ship and in hospital; each case of diarrhœa six days; and each case of cholera between seven and eight days. In 1865, the average duration of each case of dysentery was about thirty days; of each case of diarrhœa about six days; and of each case of cholera

Total Force.

a little over eight days. On the China Station, where these diseases chiefly abound, and in their most fatal forms, there was a decrease in the ratio of cases, compared with the preceding year, equal to 43·2 per 1,000 of mean force, which was almost altogether referable to a diminution in the number of cases of diarrhœa. Of sixty-six cases of dysentery, sixteen proved fatal. Fifteen deaths occurred in 1865, out of 102 cases; the disease, however, seems to have been somewhat more tedious in 1865, as the average duration of each case on the China Station then was thirty-seven days, whereas in 1866 it was only twenty-nine.

Diseases of the Liver and Spleen.—Under this head there were slight reductions in the case, and invaliding rates, compared with the preceding year. The ratio of mortality was, however, higher. Of 142 cases of various forms of disease of the liver, chiefly inflammatory, thirty-three were invalided, and eleven proved fatal. In almost all the latter cases, death was occasioned by inflammation running on to abscess. As heretofore these diseases prevailed most on the Cape of Good Hope and East Indies and the China stations.

Diseases of the Genito-Urinary Organs.—Compared with the preceding year, there was a decrease in the ratio of cases of all forms of disease coming under this head to the extent of 20·5 per 1,000 of mean force. The reduction in the ratio of cases of syphilis was equal to 12·9 per 1,000, and in the ratio of cases of gonorrhœa 5·2. It will be perceived by the following Table, that, compared with 1865, there was a decrease of syphilis on the Home, Mediterranean, and China stations, and in the Irregular Force; and of gonorrhœa on the Home, Mediterranean, South-east Coast of America, West Coast of Africa and China stations, and in the Irregular Force. There was a very large increase of syphilis, however, on the Pacific Station, and it is to be regretted that so much communication should be held with Valparaiso, which appears to be a very hotbed of this disease. In China the reduction in the ratio of cases of venereal disease is large, but cannot, it is feared, be attributed to any falling-off in the sources from whence the disease is contracted, for in Japan they appear to have been as abundant as ever. Fortunately, the squadron appears to have had less communication with these ports, which doubtless accounts for the reduced ratio. It is gratifying to know that at the present time (1868), through the

the urgent representations of our Minister, and Commander-in-Chief in Japan, the Japanese authorities have at length been induced to adopt a system of inspection of prostitutes, which has been placed under the direction of a British naval medical officer, and will no doubt prove of the utmost advantage to the squadron stationed there.

Two thousand six hundred and ninety-five cases of primary syphilis and 834 of secondary syphilis were under treatment in the service afloat during the year, and of these, one case of primary syphilis was invalided and one died; and ninety-two of secondary syphilis were invalided and three died. Each case of primary syphilis was, on an average, about forty days under treatment on board ship and in hospital, and each case of secondary syphilis between thirty-two and thirty-three days. Two hundred and ninety-two men were, on an average, daily ineffective from primary syphilis, and about seventy-five from secondary syphilis.

Stations.	Syphilis.		Gonorrhœa.	
	1865.	1866.	1865.	1866.
Home	97·1	69·1	30·3	20·4
Mediterranean	35·2	34·1	17·1	14·8
North America and West Indies	53·4	69·	15·2	15·4
South-east Coast of America	36·1	54·1	16·1	13·3
Pacific	61·2	93·2	18·2	18·8
West Coast of Africa	42·3	44·6	40·	32·1
Cape of Good Hope and East Indies	65·5	82·6	23·8	29·1
China	165·3	129·8	35·3	26·4
Australia	16·	38·4	9·8	15·9
Irregular Force	130·9	98·1	45·7	40·1

Rheumatism.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, equal to 7·8 per 1,000. The invaliding rate was, however, a little higher. The Pacific, the West Coast of Africa, and the Australian stations maintain, as heretofore, an unenviable prominence in respect to this disease. The total number of cases of rheumatism under treatment during the year was 3,707, of which 205 were invalided, and one terminated fatally.

Total Force. fatally. The average duration of each case on board ship and in hospital was between eighteen and nineteen days.

Stations.	Rheumatism.	
	1865.	1866.
Home	66·6	59·2
Mediterranean	88·8	75·3
North America and West Indies	80·1	78·2
South-east Coast of America	78·	65·8
Pacific	109·5	107·1
West Coast of Africa	115·2	113·6
Cape of Good Hope and East Indies	83·8	85·9
China	100·4	83·3
Australia	113·3	117·3
Irregular Force	112·2	102·1

Diseases of the Special Senses.—The ratios under this head were nearly the same as in the previous year. Forty-two persons were invalided for various affections of the eyes, and twenty for deafness.

Diseases of the Skin and Cellular Tissue.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, equal to 16·7 per 1,000. The death-rate was, however, precisely the same, and the ratio of invaliding a little higher. Of 4,066 cases of ulcer, sixty-one were invalided.

Average Number Sick Daily.—The average number of men daily under treatment for febrile diseases, including the exanthemata, was 167·4; for diseases of the brain and nervous system, 35·5; of the organs of respiration, 302·4; of the heart and bloodvessels; 40·3; of the alimentary canal, 97·6; of the liver and spleen, 20·6; of the genito-urinary organs, 491·9; for rheumatism, 189·5; gout, 3·6; diseases of the bones and joints, 16·8; of the special senses, 35·9; of the skin and cellular tissue, 638·5; for dyspepsia and debility, 71·5; for diseases not classed, 13·8; and for wounds and injuries of various kinds, 384·2. The total number of men daily under treatment for various forms of disease and injury was 2,513, which is in the ratio of 50·7 per 1,000, being a reduction, compared with the preceding year, equal to 2·6 per 1,000.

The

The following Table shows the ratio per 1,000 of mean force of cases placed on the sick-list, of invaliding, and of mortality, on the different stations during the year. Total Force

STATIONS.	Ratio per 1,000 of Force of Cases placed on Sick-list.	Ratio per 1,000 of Force Invalided.	Ratio per 1,000 of Force Dead.
Home	988·7	26·1	8·1
Mediterranean	1,412·5	41·6	5·4
North America and West Indies	1,432·4	27·8	10·1
South-east Coast of America	1,522·5	35·8	8·3
Pacific	1,745·6	33·	8·7
West Coast of Africa	2,067·8	79·7	26·1
Cape of Good Hope and East Indies	1,861·	43·2	21·
China	1,470·7	56·7	18·9
Australia	1,498·5	24·4	15·
Irregular Force	1,587·9	33·4	9·

Summary.—The total force in 1866 was 49,475, and the total number of men sick daily 2,513, which is in the ratio of 50·7 per 1,000. In 1865 the ratio was 53·3.

There were 64,064 cases of disease and injury under treatment, which is in the ratio of 1313·4 per 1,000, being a reduction, compared with the preceding year, equal to 54·8 per 1,000. Each case was, on an average, 14·3 days under treatment; and the total days' sickness, divided amongst the Total Force, gave an average of 18·5 days' sickness to each man. In 1865 the average was 17·5.

The total number invalided was 1,698, which is in the ratio of 34·3 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 1·4 per 1,000. The total number of deaths was 509, being in the ratio of 10·2 per 1,000, which is below the death-rate of the preceding year by 1·1 per 1,000. Deducting deaths by violence, the ratio of mortality was only 7·9 per 1,000.

TABLE, No. 1.

SHOWING the Number of Cases of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	2,995	61·4	60	1·2	48	·9
Yellow Fever	41	·8	1	- -	34	·6
Intermittent Fever	717	14·7	17	·3	1	—
Small-Pox	239	4·9	- -	- -	8	·1
Measles	63	1·2	- -	- -	2	—
Scarlatina	151	3·	- -	- -	2	—
Varicella	4	—	—	—	—	—
Vaccinia	18	·3	—	—	—	—
Disease of the Brain	17	·3	7	·1	9	·1
Apoplexy	21	·4	1	- -	16	·3
Epilepsy	174	3·5	80	1·6	2	—
Paralysis	54	1·1	30	·6	4	—
Insanity	44	·9	23	·4	—	—
Delirium Tremens	122	2·5	5	·1	11	·2
Neuralgia	181	3·7	2	—	—	—
Vertigo	102	2·	15	·3	—	—
Insolation	34	·6	·3	- -	4	—
Tetanus	1	- -	- -	- -	2	—
Inflammation of the Lungs and Pleura	866	17·7	53	1·	31	·6
Phthisis and Hæmoptysis	381	7·8	243	4·9	84	1·6
Influenza and Catarrh	7,463	153·	12	·2	—	—
Cynanche	1,759	36·	6	·1	3	—
Asthma	26	·5	4	- -	1	—
Bronchocele	2	- -	1	—	—	—
Disease of the Heart, Functional and Organic	327	6·7	124	2·5	26	·5
Hæmorrhoids	162	3·3	3	—	—	—
Varix	80	1·6	30	·6	—	—
Aneurism	9	·1	3	- -	6	·1
Hæmorrhage	1	- -	- -	- -	1	—
Disease of the Stomach and Bowels	75	1·5	4	- -	13	·2
Dysentery	197	4·	25	·5	22	·4
Diarrhœa	4,106	84·1	24	·4	1	|
Cholera	24	·4	- -	- -	10	·2
Constipation and Colic	781	16·	1	—	—	—
Disease of the Liver	142	2·9	33	·6	11	·2
Jaundice	122	2·5	—	—	—	—
Splenitis	6	·1	2	—	—	—

TABLE, No. 1.—SHOWING the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	62	1·2	10	·2	8	·1
Syphilis, Primary	2,695	55·2	1	- -	1	—
Syphilis, Secondary	834	17·	92	1·8	3	—
Gonorrhœa	1,081	22·1	2	—	—	—
Orchitis	934	19·1	14	·2	—	—
Stricture	190	3·8	23	·4	1	—
Incontinence of Urine, &c.	25	·5	10	·2	—	—
Rheumatism	3,707	76·	205	4·1	1	—
Gout	84	1·7	7	·1	—	—
Disease of the Bones and Joints	224	4·5	30	·6	2	—
Inflammation of the Eyes	574	11·7	20	·4	—	—
Amaurosis and Cataract	58	1·1	22	·4	—	—
Otitis and Deafness	172	3·5	20	·4	—	—
Erysipelas	95	1·9	2	- -	7	·1
Scrofula	56	1·1	25	·5	1	—
Bubo (*Symp.*)	716	14·6	5	·1	—	—
Phlegmon and Abscess	10,819	221·8	27	·5	2	—
Ulcer	4,066	83·3	61	1·2	—	—
Psora	528	10·8	—	—	—	—
Eruptions, &c.	681	13·9	9	·1	—	—
Dyspepsia and Debility	2,558	52·4	99	2·	—	—
Scurvy	2	—	—	—	—	—
Dropsy	64	1·3	3	- -	6	·1
Worms	137	2·8	3	—	—	—
Headache	363	7·4	10	·2	—	—
Purpura	12	·2	2	—	—	—
Pyæmia	1	- -	- -	- -	3	—
Cancer	2	- -	- -	- -	6	·1
Wounds and Injuries	11,182	229·2	108	2·1	39	·7
Burns and Scalds	490	10·	1	—	—	—
Hernia	123	2·5	75	1·5	—	—
Drowned	- -	- -	- -	- -	65	1·3
Poisoning	10	·2	- -	- -	1	—
Asphyxia	2	- -	- -	- -	2	—
Suicide	7	·1	- -	- -	8	·1
Not stated	- -	- -	- -	- -	1	—
Submersion	3	—	—	—	—	—
TOTAL	64,064	1313·4	1,698	34·3	509	10·2

TABLE, No. 2.

SHOWING the Average Force Corrected for Time; the Number of CASES; the Number of Days' SICKNESS; with the Ratios on the different Stations.

STATION.	Average Force.	Number of Cases of Disease and Injury.	Number of Cases per Man.	Number of Days' Sickness on Board.	Average Number Sick Daily on Board.	Ratio per 1,000 of Force.	Number discharged to Hospital.	Ratio per 1,000 of Force.	Number of Days' Sickness in Hospital.	Average Number of Men Daily in Hospital.	Ratio per 1,000 of Force.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Home - - -	21,200	20,961	·9	176,666	484·	22·8	3,030	142·9	150,244	411·6	19·4	326,910	895·7	42·2
Mediterranean -	5,520	7,797	1·4	85,841	235·1	42·5	298	53·9	14,987	41·	7·4	100,828	276·2	50·
North America and West Indies -	5,240 5,420	7,506	1·4	80,532	220·6	42·	457	87·2	16,920	46·3	8·5	97,452	266·9	49·2
South-east Coast of America - -	1,200	1,827	1·5	19,006	·52·	43·3	41	34·1	2,543	6·9	5·7	21,549	59·	49·
Pacific - - -	2,390	4,172	1·7	46,913	128·5	53·7	191	79·9	11,306	30·9	12·9	58,219	159·5	66·7
West Coast of Africa	1,680	3,474	2·	34,484	94·4	56·1	272	161·9	9,769	26·7	15·8	44,253	121·2	72·1
Cape of Good Hope and East Indies -	1,850	3,443	1·8	36,951	101·2	54·7	182	98·3	11,391	31·2	16·8	48,342	132·4	71·5
China - - -	3,550 4,070	5,221	1·4	62,439	171·	48·1	401	112·9	17,370	47·5	11·6	79,809	218·6	61·5
Australia - -	1,065	1,596	1·4	15,472	42·3	39·7	39	36·6	1,539	4·2	3·9	17,011	46·6	43·7
Irregular - -	5,080	8,067	1·5	85,652	234·6	46·1	681	134·	37,238	102·	20·	122,890	336·6	66·2
TOTAL - - -	48,775 49,475	64,064	1·3	643,956	1764·2	36·1	5,592	114·6	273,307	748·7	15·1	917,263	2513·	50·7

TABLE, No. 3.

SHOWING the Number of MEN INVALIDED and DEAD from DISEASE and INJURY on the different Stations, with the Ratios per 1,000 of Force.

STATION.	Number of Men Invalided for Disease.	Ratio per 1,000 of Force.	Number of Men Invalided for Injury.	Ratio per 1,000 of Force.	Total Number Invalided.	Ratio per 1,000 of Force.	Number of Deaths from Disease.	Ratio per 1,000 of Force.	Number of Deaths from Injury.	Ratio per 1,000 of Force.	Total Number of Deaths.	Ratio per 1,000 of Force.
Home	474	22·3	80	3·7	554	26·1	137	6·4	34	1·6	171	8·
Mediterranean	212	38·4	18	3·2	230	41·6	23	4·1	7	1·2	30	5·4
North America and West Indies	136	25·	15	2·7	151	27·8	37	6·8	18	3·3	55	10·1
South-east Coast of America	40	33·3	3	2·5	43	35·8	8	6·6	2	1·6	10	8·3
Pacific	72	30·1	7	2·9	79	33·	14	5·8	7	2·9	21	8·7
West Coast of Africa	126	75·	8	4·7	134	79·7	39	23·2	5	2·8	44	26·1
Cape of Good Hope and East Indies	72	38·9	8	4·3	80	43·2	31	16·7	8	4·3	39	21·
China	217	53·3	14	3·4	231	56·7	60	14·7	17	4·1	77	18·9
Australia	25	23·4	1	·9	26	24·4	10	9·3	6	5·6	16	15·
Irregular	140	27·5	30	5·9	170	33·4	34	6·6	12	2·3	46	9·
TOTAL	1,514	30·6	184	3·7	1,698	34·3	393	7·9	116	2·3	509	10·2

TABLE, No. 4.

SHOWING the Number of DAYS' SICKNESS from each DISEASE and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	29,119	12,009	41,128	112·6	2·2
Yellow Fever	292	302	594	1·6	—
Intermittent Fever	5,945	1,887	7,832	21·4	·4
Small-pox	4,994	1,446	6,440	17·6	·3
Measles	160	652	812	2·2	—
Scarlatina	633	3,618	4,251	11·6	·2
Varicella	2	67	69	·1	—
Vaccinia	112	-	112	·3	—
Disease of the Brain	213	558	771	2·1	—
Apoplexy	69	253	322	·8	—
Epilepsy	1,606	985	2,591	7·	·1
Paralysis	831	1,969	2,800	7·6	·1
Insanity	444	1,394	1,838	5·	·1
Delirium Tremens	658	488	1,146	3·1	—
Neuralgia	1,328	395	1,723	4·7	—
Vertigo	516	896	1,412	3·8	—
Insolation	373	162	535	1·4	—
Tetanus	8	-	8	—	—
Inflammation of the Lungs and Pleura	12,376	14,193	26,569	72·7	1·4
Phthisis and Hæmoptysis	6,254	14,806	21,060	57·6	1·1
Influenza and Catarrh	44,083	4,433	48,516	132·9	2·6
Cynanche	12,223	1,656	13,879	38·	·7
Asthma	311	125	436	1·1	—
Bronchocele	12	29	41	·1	—
Disease of the Heart, Functional and Organic	5,001	5,947	10,948	29·9	·6
Hæmorrhoids	1,824	334	2,158	5·9	·1
Varix	815	501	1,316	3·6	—
Aneurism	101	248	349	·9	—
Hæmorrhage	3	-	13	—	—
Disease of the Stomach and Bowels	1,166	836	2,002	5·4	·1
Dysentery	2,742	2,621	5,363	14·6	·2
Diarrhœa	20,909	3,753	24,662	67·5	1·3
Cholera	119	59	178	·4	—
Constipation and Colic	3,331	245	3,576	9·7	·1
Disease of the Liver	2,355	2,944	5,299	14·5	·2
Jaundice	1,592	448	2,040	5·5	·1
Splenitis	162	62	224	·6	—

TABLE, No. 4.—Showing the Number of Days' Sickness from each Disease, &c.—*continued.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	972	1,117	2,089	5·7	·1
Syphilis, Primary	51,479	55,213	106,692	292·3	5·9
Ditto - Secondary	15,524	11,757	27,281	74·7	1·5
Gonorrhœa	14,396	4,100	18,496	50·6	1·
Orchitis	13,494	4,921	18,415	50·4	1·
Stricture	2,154	3,725	5,879	16·1	·3
Incontinence of Urine, &c.	368	407	775	2·1	—
Rheumatism	42,880	26,293	69,173	189·5	3·8
Gout	901	422	1,323	3·6	—
Disease of the Bones and Joints	3,286	2,863	6,149	16·8	·3
Inflammation of the Eyes	6,053	3,632	9,685	26·5	·5
Amaurosis and Cataract	525	499	1,024	2·8	—
Otitis and Deafness	1,480	934	2,414	6·6	·1
Erysipelas	1,064	1,612	2,676	7·3	·1
Scrofula	1,008	1,568	2,576	7·	·1
Bubo (*Symp.*)	14,250	6,125	20,375	55·8	1·1
Phlegmon and Abscess	90,304	11,107	101,411	277·8	5·6
Ulcer	67,563	21,786	89,349	244·7	4·9
Psora	4,246	223	4,469	12·2	·2
Eruptions, &c.	7,984	4,205	12,189	33·3	·6
Cancer	101	78	179	·4	—
Dyspepsia and Debility	17,500	8,599	26,099	71·5	1·4
Scurvy	42	66	108	·2	—
Dropsy	716	774	1,490	4·	—
Worms	546	64	610	1·6	—
Headache	1,920	643	2,563	7·	·1
Purpura	110	277	387	1·	—
Pyæmia	24	-	24	--	—
Wounds and Injuries	112,985	19,261	132,246	362·3	7·3
Burns and Scalds	5,781	604	6,385	17·4	·3
Hernia	1,529	108	1,637	4·4	—
Poisoning	67	3	70	·1	—
Submersion	12	-	12	—	—
TOTAL	643,956	273,307	917,263	2513·	50·7

TABLE, No. 5.

SHOWING the NUMBER INVALIDED on the several STATIONS.

CAUSE OF INVALIDING.	Home.	Mediterranean.	North America and West Indies.	South-east Coast of America.	Pacific.	West Coast of Africa.	East Indies and Cape of Good Hope.	China.	Australia.	Irregular Force.	TOTAL.
Continued and Remittent Fever	1	10	5	1	4	29	–	8	–	2	60
Intermittent Fever	3	1	1	–	–	8	1	2	–	1	17
Yellow Fever	–	–	–	–	–	1	–	–	–	–	1
Inflammation of the Brain	2	–	–	–	1	2	–	–	–	2	7
Insanity	4	8	2	1	–	1	1	5	1	–	23
Delirium Tremens	–	–	1	–	–	–	–	4	–	–	5
Apoplexy	–	–	–	–	–	–	–	1	–	–	1
Epilepsy	30	13	10	1	2	5	–	2	1	16	80
Paralysis	16	2	3	1	2	2	–	2	–	2	30
Insolation	–	–	–	–	–	–	1	1	1	–	3
Neuralgia	1	–	–	–	–	–	1	–	–	–	2
Vertigo	8	–	2	–	–	–	1	1	–	3	15
Inflammation of the Lungs and Pleura	20	6	10	–	3	3	1	5	1	4	53
Phthisis and Hæmoptysis	92	45	29	4	11	11	8	23	7	13	243
Catarrh	4	3	5	–	–	–	–	–	–	–	12
Cynanche	3	–	1	1	–	–	1	–	–	–	6
Asthma	2	–	1	1	–	–	–	–	–	–	4
Bronchocele	1	–	–	–	–	–	–	–	–	–	1
Disease of the Heart, Functional and Organic	55	12	11	4	12	5	1	12	2	10	124
Aneurism	–	1	1	–	–	–	–	–	–	1	3
Hæmorrhoids	–	1	1	–	–	1	–	–	–	–	3
Varix	17	2	1	1	2	2	–	1	–	4	30
Inflammation of the Stomach and Bowels	2	–	–	–	–	–	1	–	–	1	4
Dysentery	1	1	–	1	1	–	3	15	–	3	25
Diarrhœa	1	1	2	1	1	2	1	15	–	–	24
Colica Pictonum	1	–	–	–	–	–	–	–	–	–	1
Disease of the Liver	4	5	2	1	2	1	5	13	–	–	33
Splenitis	–	1	–	–	–	–	–	1	–	–	2
Inflammation of the Kidneys and Bladder	1	2	1	–	1	–	–	3	–	2	10
Syphilis, Primary	–	–	–	–	–	–	1	–	–	–	1
Ditto - Secondary	22	12	5	5	4	4	6	29	–	5	92
Gonorrhœa	–	–	–	–	1	–	–	1	–	–	2
Orchitis	3	2	–	–	1	3	1	2	–	2	14
Stricture	–	2	2	5	3	2	4	3	–	2	23
Incontinence of Urine, &c.	6	–	1	–	–	–	–	2	–	1	10
Rheumatism	55	40	17	3	14	8	14	26	5	23	205
Gout	3	1	–	–	1	–	1	–	–	1	7
Diseases of the Bones and Joints	10	7	1	1	1	2	2	2	1	3	30
Inflammation of the Eyes	6	4	2	–	1	3	–	1	–	3	20
Amaurosis and Cataract	6	2	4	2	2	–	2	1	–	3	22
Otitis and Deafness	10	1	1	2	–	1	1	1	–	3	20
Erysipelas	2	–	–	–	–	–	–	–	–	–	2
Scrofula	15	1	1	–	–	2	1	–	1	4	25
Bubo (*Symp.*)	3	–	1	1	–	–	–	–	–	–	5
Abscess	9	7	1	–	–	–	2	3	–	5	27
Ulcer	25	1	1	1	2	9	3	9	1	9	61
Eruptions, &c.	3	2	1	1	–	–	–	–	–	2	9
Dyspepsia and Debility	24	11	7	1	–	18	6	21	4	7	99
Headache, &c.	1	4	2	–	–	–	–	–	–	3	10
Dropsy	1	–	–	–	–	–	–	2	–	–	3
Worms	–	1	–	–	–	–	2	–	–	–	3
Purpura	1	–	–	–	–	1	–	–	–	–	2
Wounds	44	11	8	–	4	6	7	8	1	19	108
Hernia	36	7	7	3	2	2	1	6	–	11	75
Burns	–	–	–	–	1	–	–	–	–	–	1
TOTAL	554	230	151	43	79	134	80	231	26	170	1,698

TABLE, No. 6.

SHOWING the Number of DEATHS on the several STATIONS.

CAUSE of DEATH.	Home.	Mediterranean.	North America and West Indies.	South-east Coast of America.	Pacific.	West Coast of Africa.	East Indies and Cape of Good Hope.	China.	Australia.	Irregular Force.	TOTAL.	Ratio per Cent. of Deaths from Disease.	Ratio per Cent. of Deaths from Injury.	Ratio per Cent. of Deaths from all Causes.
Continued and Remittent Fever	11	4	3	1	2	5	9	9	–	4	48	12·2	–	9·4
Yellow Fever	–	–	9	–	–	25	–	–	–	–	34	8·6	–	6·6
Intermittent Fever	–	–	–	–	–	1	–	–	–	–	1	·2	–	·1
Small-pox	–	–	–	–	–	–	6	1	–	1	8	2·	–	1·5
Measles	–	–	–	–	–	–	2	–	–	–	2	·5	–	·3
Scarlatina	2	–	–	–	–	–	–	–	–	–	2	·5	–	·3
Inflammation of the Brain	2	–	–	–	1	2	–	–	1	3	9	2·2	–	1·7
Apoplexy	5	3	3	–	1	–	3	–	–	1	16	4·	–	3·1
Epilepsy	2	–	–	–	–	–	–	–	–	–	2	·5	–	·3
Paralysis	4	–	–	–	–	–	–	–	–	–	4	1·	–	·7
Delirium Tremens	1	2	4	–	–	–	1	3	–	–	11	2·7	–	2·1
Insolation	–	–	–	–	–	–	–	4	–	–	4	1·	–	·7
Tetanus	–	1	1	–	–	–	–	–	–	–	2	·5	–	·3
Inflammation of the Lungs and Pleura	11	–	3	–	3	3	2	2	2	5	31	7·8	–	6·
Phthisis	39	3	11	2	3	–	2	10	3	11	84	21·3	–	16·5
Diphtheria	2	–	–	–	–	–	–	–	1	–	3	·7	–	·5
Asthma	1	–	–	–	–	–	–	–	–	–	1	·2	–	·1
Disease of the Heart	17	1	1	1	–	1	1	1	1	1	25	6·3	–	4·9
Aneurism	2	1	–	–	1	–	–	1	–	1	6	1·5	–	1·1
Angina Pectoris	1	–	–	–	–	–	–	–	–	–	1	·2	–	·1
Hæmorrhage, Passive	–	–	1	–	–	–	–	–	–	–	1	·2	–	·1
Disease of the Stomach and Bowels	3	–	–	–	1	–	–	–	–	–	4	1·	–	·7
Gastritis	–	–	–	1	–	–	–	–	–	1	2	·5	–	·3
Enteritis	–	–	–	–	–	–	1	–	–	–	1	·2	–	·1
Peritonitis	–	–	–	–	–	–	–	3	–	–	3	·7	–	·5
Diarrhœa	1	–	–	–	–	–	–	–	–	–	1	·2	–	·1
Dysentery	1	2	–	1	–	–	1	16	–	1	22	5·5	–	4·3
Cholera	8	1	–	–	–	–	1	–	–	–	10	2·5	–	1·9
Hæmatemesis	2	–	1	–	–	–	–	–	–	–	3	·7	–	·5
Disease of the Liver	6	–	–	–	–	–	–	3	1	1	11	2·7	–	2·1
Nephritis	6	–	–	–	–	–	–	1	–	1	8	2·	–	1·5
Syphilis, Primary	–	–	–	–	–	–	1	–	–	–	1	·2	–	·1
Ditto - Secondary	–	–	–	–	–	–	1	2	–	–	3	·7	–	·5
Stricture	–	–	–	–	1	–	–	–	–	–	1	·2	–	·1
Rheumatism	–	1	–	–	–	–	–	–	–	–	1	·2	–	·1
Disease of the Bones and Joints	–	1	–	1	–	–	–	–	–	–	2	·5	–	·3
Erysipelas	2	1	–	–	1	–	–	1	–	2	7	1·7	–	1·3
Scrofula	–	1	–	–	–	–	–	–	–	–	1	·2	–	·1
Phlegmon and Abscess	1	–	–	–	–	–	–	–	1	–	2	·5	–	·3
Dropsy	1	1	–	1	–	1	–	2	–	–	6	1·5	–	1·1
Cancer	5	–	–	–	–	–	–	1	–	–	6	1·5	–	1·1
Pyæmia	1	–	–	–	–	1	–	–	–	1	3	·7	–	·5
Wounds and Injuries	12	6	6	–	1	3	6	1	1	3	39	–	33·6	7·6
Drowned	18	1	12	1	3	2	2	15	3	8	65	–	56·	12·7
Suicide	3	–	–	1	2	–	–	1	1	–	8	–	6·8	1·5
Asphyxia	–	–	–	–	1	–	–	–	1	–	2	–	1·7	·3
Poisoning by Opium	–	–	–	–	–	–	–	–	–	1	1	–	·8	·1
Not stated	1	–	–	–	–	–	–	–	–	–	1	–	·8	·1
TOTAL	171	30	55	10	21	44	39	77	16	46	509	–	–	–

APPENDIX.

Appendix, No. 1.

App. No. 1.

Sanitary Precautions in regard to Cholera.

Admiralty, 3 August 1866.

In view of the epidemic of cholera which is at present prevailing in the United Kingdom, my Lords are pleased to issue the following instructions to officers commanding Her Majesty's ships and vessels on the Home Station, and to colonels commandant of marine divisions:—

There appears to be little doubt that in the present state of knowledge with respect to this disease any hope of successfully combatting it is very much limited to its earliest stage, that of the premonitory diarrhœa; and it is to the fact that patients rarely present themselves to the medical officers until that stage is past, that the great mortality it occasions is attributable. As no amount of experience on the part of the men themselves, and no advice given them, appear to be of any value in inducing them to present themselves at an earlier period, it will be necessary to institute such measures as may permit of a daily knowledge of the general state of health of the individual members of the ship's company, and of the men in barracks, being obtained. For this purpose my Lords direct—

1. That the petty officers of messes be desired to exercise an unobtrusive watchfulness over the men composing their messes; that they report to the medical officer any man whom they may know or have reason to suspect to be labouring under diarrhœa, or who may appear to be in ill-health; and that it be impressed upon them that by evincing an intelligent interest in this direction they will do much to prevent any outbreak of cholera on board.

2. Once daily, at least, at a time when the majority of the men are in their messes, a medical officer shall go round the different mess-decks and ascertain from the petty officers of messes whether there is any one requiring his attention.

3. The officers of divisions when inspecting their men, shall take notice of any man who may appear to be in ill-health, and shall cause him to be at once taken to the sick-bay and reported to the surgeon.

4. Twice daily, at least, the head shoots, as well as the shoots of the different water-closets in the ship which are much used, shall be washed down with a solution of chloride of zinc, in the proportion of one part of Burnett's solution of chloride of zinc to thirty of water, or chloride of lime may be freely used instead;

App. No. 1. and instructions shall be given to the captain of the head to report to the surgeon any man who, from making repeated use of it, may be suspected to be labouring under diarrhœa.

5. Should cholera have established itself on board any ship, the utmost care is to be taken that the choleraic discharges, whether from the stomach or bowels, are largely mixed with the solution of the chloride of zinc or some other disinfectant before they are thrown away, and that any clothing or bedding contaminated with the discharges be destroyed.

The above regulations, *mutatis mutandis*, will apply to the different marine barracks.

The non-commissioned officers of the different rooms shall be directed to exercise a watchfulness over the men of the rooms, and report to the surgeon of the division, or to the medical officer on duty, any man who may be known to them to be labouring under diarrhœa, or may appear to be in ill-health.

Once daily, at least, at a time when it may be considered most desirable, a medical officer shall visit each room in the barracks, and ascertain from the non-commissioned officer of the room whether there is any one requiring his attention; he will also in the same manner and for the same purpose make a room-to-room visitation of the married men's quarters.

On parade, officers of companies shall note any man who may appear to be in ill-health, and shall cause him to be at once brought under the notice of the medical officer.

The different privies in the barracks shall be washed down twice a day with the solution of the chloride of zinc or chloride of lime, and every care shall be taken to keep them as pure and inoffensive as possible.

Choleraic discharges, and clothing or bedding contaminated with them, are to be dealt with as noted above.

Care is to be taken that the water supplied to Her Majesty's ships, and to the marine barracks, is in all respects free from organic impurities.

By Command of their Lordships,

Henry G. Lennox.

Appendix, No. 2.

REMARKS on the Natural History, Meteorology, and Native Population of the Northern Territory of South Australia. By *Belgrave Ninnis*, M.D., Assistant Surgeon, R.N.; Medical Officer in Charge of Surveying Schooner "Beatrice," and some time Acting Colonial Surgeon, Palmerston, Adam Bay. App. No. 2.

THE South Australian Government having determined upon forming a settlement in their recently-acquired northern territory situated between longitude 129° and 138° east from Greenwich, the Beatrice, ninety-nine tons, surveying schooner, was dispatched from Adelaide, South Australia, April 9th, 1864, to examine the coast, and to discover and survey a harbour combining good anchorage with easy access to habitable country, and, if possible, having sufficient eligible land in its immediate vicinity for the site of a township. The Government Resident of the northern territory started within a few weeks to fix the site for the township, and to survey the requisite quantity of land, many hundred thousand acres having been already disposed of.

The Adelaide River, longitude 131° 10′ 9″E., having been favourably spoken of by the various explorers who had visited that portion of the northern country, it was decided that that locality should be first visited and thoroughly examined. The banks of this river for the first forty miles are for the most part low, but not below high water level, excepting at its mouth, and then only during spring tides. At this period it is navigable for 100 miles by vessels drawing about nine feet. The country on either side is flat, and shelves inland, bearing evidence of occasionally being under water, most probably from the quantity of rain falling during the wet season. As we ascend, the banks become higher and the country more undulating, until it terminates in a range of rocky hills. Its banks for more than half the distance between its mouth and source, are lined by mangrove trees and shrubs. Some of the former are tall and straight; and although when first felled are very heavy, on drying they become light and form very fair spars. The remainder of the river is lined by bamboos, some of them reaching a height of eighty feet.

Immediately beyond the belt of mangroves and bamboos, and intervening between it and the rising ground, a distance varying from one to six miles, the country is covered by tall arundinaceous grass, generally about six feet in height; although I have ridden through extensive plains where it has reached fully four feet above my head whilst on horseback. About August when it has become of the colour and dryness of straw, the natives set fire to it, thus causing immense and destructive bush fires, lasting sometimes for

App. No. 2.

many weeks; devastating miles of country, scorching and stunting the growth of some trees, and occasionally totally destroying whole forests, as well as all living things that are not supplied by nature with such capabilities for rapid locomotion as will enable them to flee from the all-devouring element. It is a dreary sight to contemplate the wholesale destruction thus brought about, large tracts of country rendered black and desolate, ashes lying inches thick on the ground, tall trees rendered leafless, affording no shade to the parched and half-suffocated traveller, who, to add to his misery, is often rendered lame by stumps of shrubs burnt to the hardness and sharpness of glass. But very soon the young grass forces its way through the ashes which in their turn quickly disappear; fresh leaves sprout from those trees not absolutely lifeless, and herds of kangaroos are soon making the most of the young and tender pasturage.

Most of the trees in this part of the Australian continent are small, seldom attaining to more than about fourteen inches in diameter. There is a kind of cane much resembling malacca, found in plenty on the borders of fresh-water creeks. The scarcity of sound timber of any size is referable in a great measure to the number of white ants overrunning the country; it is almost impossible to stop their ravages. Even the painted pegs used by the surveyors were rendered mere shells in a very few weeks. The mounds built by these industrious insects are very large, many measuring twenty-four feet in height. A great number are generally collected into a space containing but little timber, and scarcely any brushwood. Their long axes are generally in the same plane.

There is very little hilly country in the immediate vicinity of the Adelaide River, except at its source. Proceeding westwards to Port Darwin, and thence to the Victoria river, the country is very stony, principally quartz, felspar, syenite and conglomerate; sandstone is plentiful; granite and limestone scarce. Proceeding eastwards from Adam Bay, past Port Essington and Raffles Bay (sites of abandoned settlements), we arrive at Mount Norris Bay, with its picturesque groups of islands and hilly background. The largest of these is Croker Island, beautiful, undulating, well grassed and timbered; its numerous creeks yielding a good supply of excellent fish, its groves of trees alive with singing birds; besides these, a few kangaroo of small size are to be met with. It is separated from the mainland by a narrow strait, which, however, is easily crossed by the natives, even in their bark canoes. The remaining islands, Darch, Valentia, Copeland, Grant's, Templar, and M'Cluer, are all fairly timbered and grassed, but being much smaller than Croker are not used by the natives as places of permanent abode, with the exception of Grant's Island which (its creeks supplying a fair amount of fish) is sometimes occupied for a month or two at a time. On the mainland to the westward and southwards, numberless buffalo are found but seldom congregating in herds of more than five or six. They are the offspring of the cattle turned loose from the northern settlements before mentioned (on their being abandoned by the Government), resembling much the buffalo of the Indian islands. The horns

horns are somewhat flattened, black, and pointed, curving downwards and backwards. The flesh is dark coloured, and decided in flavour, but fairly tender, and entirely devoid of fat; when cut up and disembowelled, the animals weigh from 800 lbs. to 1,000 lbs. They are very shy and difficult of approach, mostly frequenting large grassy plains, which have a few small clumps of trees, and a water-hole or two scattered about, so that very little shelter is afforded for an enemy to approach; at the same time that protection from the mid-day sun is obtained. The natives, occasionally finding them in the scrub, wait until they lie down, when creeping up and hamstringing them with a tomahawk, finish them with their spears. After cutting off the horns the carcass is left to the birds. Very few are thus killed, as the natives do not like the meat, preferring slugs, worms, and the innumerable creeping things to be obtained from the bed of a half dried up morass. A few Timor ponies are said by the natives to exist on the peninsula, but as they are very much further north, I did not see any. A few pigs are said to exist in the same locality. App. No. 2.

The country continues hilly until we approach the Liverpool, a fine broad, but short river, only extending about forty miles inland. Its mouth is about six miles across, and has an island (Entrance Island) off the centre of it, which is frequently visited by natives from the mainland, and likewise by the Malays. A well of considerable dimensions was found sunk in the middle of a swamp. Several nests of the jungle fowl (*Megapodius Tumulus*) of Port Essington were likewise found here; one, of very considerable dimensions, measuring about sixty-five feet in circumference, and nearly fifteen feet high. The birds are about the size of an ordinary fowl; head, back, wings and tail, reddish brown; neck, breast, &c., dark grey. They have a crest of the same colour as the head. Feet are very large and strong, and of an orange colour; bill, reddish brown. The nests are composed of earth, sand, shells, and débris of trees and shrubs. They are found near the beach, and always in the midst of a dense thicket.

The natives are, for the most part, hostile to the Whites, excepting where they have had intercourse with civilized beings.

On the arrival of the party at the Adelaide River, the natives were peaceably inclined, but collisions soon took place between the races, brought about by the thieving propensities of the former; and as it was found necessary to punish a few of the most incorrigible, ill-feeling was engendered, and frequent affrays, the result terminating, on more than one occasion, in the death of either White or Black.

They are for the most part tall and well-formed, broad-chested, and well-developed, but nearly destitute of calf. The men averaging about 5 ft. 10½ in., seldom less than 5 ft. 8 in., and often reaching 6 ft. 2 in. They are entirely destitute of clothing. Some few occasionally are seen with feathers in their hair, a belt made of bark round the waist, or a piece of plaited grass around the arm; these are evidently considered as ornaments, as are likewise the pieces of stick passed through the septum nasi and lobes of the ears. Most of the men are marked parallel to the ribs with deep cicatrices; similar

App. No. 2. similar marks are to be seen on the flanks, and over the deltoids. These are formed by making deep gashes and then rubbing in earth. On marriage, the man is scored over the deltoids in the manner previously mentioned, and his right central incisor tooth is knocked out. A piece of wood is placed against the doomed incisor, and struck smartly with a stone or wooden club, when a fracture or dislocation is the result. Polygamy is practised, but owing to the scarcity of women, not to any great extent; one man seldom having more than two wives; these he either steals from another tribe, or purchases from her parents by means of presents if of his own people. The stealing is conducted in the following manner. The expectant bridegroom, on arriving near the encampment of the tribe from which he intends taking a wife, conceals himself, and watching his opportunity, enters the camp during the night, and seizes his intended bride by the hair of her head; she evidently knowing what is likely to be her lot if she disturbs her kindred, and perhaps not being unwilling to change her present condition for one which has novelty to recommend it, if nothing more, quietly steals away. The bridegroom returns to his people, having, as it is considered, performed a highly meritorious action. Conjugal rights are jealously protected, the slightest infringement producing a fight which seldom terminates without the breaking of bones, or infliction of severe and even fatal injuries. Several fractures, induced in this manner, were put up by the medical officer in charge of the settlement. They neither smoke nor drink. Their canoes are made from bark which is removed from the trees in its entire circumference; the ends are sewn together, and the sides kept apart by means of pieces of wood placed from side to side. Their weapons consist of spears, clubs, a kind of sword, and the throwing stick. The spear is generally about ten feet long, the shaft being formed of some hollow wood, straightened and hardened by fire. The heads are either hard wood, formidably barbed, or else sharply pointed pieces of stone. A mortal wound can be inflicted by them at 80 to 100 yards, if thrown with the throwing stick. The clubs are of two kinds, one round, and about five feet long, the other flat, and about the same length. The sword is much curved, one edge being made very sharp. These are all made from the hardest wood that the country affords. I have seen boomerangs, but they appear to be very little used. They have a breed of dogs, some of them as large as a Newfoundland, but with a very repulsive and bull-dog face, most likely produced by crossing the dingo or native dog with some Malay dog, or possibly some left by the northern settlers at Port Essington or Raffles Bay.

The only people who appear to regularly visit this coast are the Malays, who come hither from Macassar, in very unseaworthy proahs, during the prevalence of the north-west, and return with the south-east monsoon, occupying the intervening space in collecting trepang, which they preserve for the Indian and China markets. They principally congregate in or near Mount-Norris Bay, making Copeland Island their head quarters. Here they have erected a number of stone fire-places, on which they place the iron pots used in the preserving process. On Entrance Island, at the mouth of the

Liverpool

Liverpool River, there exists a similar preserving establishment. It is worthy of remark that between the Victoria River and Port Essington on the west, and beyond the eastern bank of the Liverpool River in the opposite direction, the natives are hostile and fierce, do not know the use of spirits and tobacco, use bark canoes, have not any tomahawks or other iron implements, and are very strict as regards the chastity of their women. Nor do they hesitate to attack in the open, white men, even if armed with revolvers. Rifles they do not like. Whereas, between Port Essington and the western bank of the Liverpool River, many of them speak English and Malay, use canoes cut out of trees, possess tomahawks and other iron implements, are ahungered and athirst for tobacco and spirits, are mostly friendly to foreigners, and do not scruple to temporarily part with their females for a suitable consideration. App. No. 2.

The aborigines' idea of a Supreme Being, or of a future state, is very vague. They acknowledge the existence of a good and a bad spirit. The latter they suppose to resemble one of themselves, having a monkey's face, but no tail. It is never visible to a white man, and only to a black fellow when he is alone, and then only after dark. They are warned of his neighbourhood by seeing lights flying about (probably fireflies). Occasionally, he is said to entice his victim underground, and there eat him. Time is measured by the position of the sun in the heavens. When it sets, it is supposed to dip below the horizon, the night being occupied by its passage below the northern horizon, from west to east; on its arrival at the latter part it rises, and another day is commenced. The moon is supposed to follow the same course. Pains about the joints or extremities are treated by the local application of fire. If a man is otherwise ill, he is supposed to have a snake in his stomach; to get rid of this, the medicine man places an ant on the back of the patient's tongue; if he gets better, the snake is supposed to have passed per anum, but if he dies, it is said to refuse to move. Circumcision is not practised. During the catamenial period, the women are expelled the camp. They, when young, are not by any means bad-looking, have straight noses, bright dark eyes, and well developed busts. When they become old and have had families, they are particularly plain.

During the summer months the natives do not sleep under cover; but when the rainy season sets in they build themselves huts. These are of two kinds; 1st, those made of grass, and 2nd, those made of bark. The former are formed by sticking branches of trees in the ground in the form of a circle, fastening the top together so as to form a dome, and then covering the whole with the long dried grass, leaving a space close to the ground on one side, about a foot and a half in diameter, to enable its proprietor to creep in. These much resemble bee-hives, varying from four to twelve feet in height, and about the same in diameter.

The bark houses show more architectural pretensions, and are found, as a rule, where the inhabitants possess cutting implements. Two stakes, about four feet high, are driven firmly into the ground, about seven or eight feet apart, each stake having a forked upper

App. No. 2. end, within which a sapling is laid, connecting the two together. Slabs of bark are neatly sloped from the ground to the sapling, the point of contact of the opposite sides being further closed in by a double piece of bark lying longitudinally the entire length of the hut. The ends, as a rule, are left open. The inner surface of these huts is variously ornamented with drawings of birds, kangaroos, turtle, fishes, alligators or lizards, and occasionally a man's hand, all done in coloured earths, some of them bearing evidence of great care having been bestowed upon their production. Similar drawings are sometimes seen on the plains after the burning of the grass; but these mostly comprise alligators, centipedes, turtle, and snakes, all drawn life size excepting the centipedes, which are generally about four feet in length. The manner of disposing of their dead appears to be after this wise: The body, being covered up in matting and dried grass, is either placed in a tree on a platform carefully constructed for the purpose (many of which are to be seen either occupied by their decomposing proprietor, or in a state of decay themselves), or else being deposited in an abandoned hut is there left. After the lapse of sufficient time to allow for the destruction of the soft parts, the friends return, gather the bones together, in many instances carrying them about with them until, gradually becoming reduced by dropping by the way, the skull alone remains; this, having a piece of plaited straw passed through the orbit and out at the foramen magnum, still continues its wanderings until it is likewise abandoned.

Whether cannibalism is practised it is very difficult to discover. The natives from whom I obtained nearly all the information contained in the foregoing remarks (one or two having lived at Port Essington, besides visited foreign countries in the vessels that used to call there, and who speak English very fairly) strongly repel any such insinuation, but they point away to the north-east where they say it is in vogue. On one occasion I discovered part of the remains of a human being (most probably, from the appearance of the bones, those of a young woman) surrounded by numerous shells and bones of fish and birds. The bones of one arm and one leg were missing, the others remaining, with very few exceptions, in their relative position, the soft parts having decomposed. The whole was covered by partially decayed underwood and leaves. If the missing limbs had been removed by wild dogs or alligators, it is hardly possible for them to have been detached without disturbing the relative positions of the remainder.

Of sickness amongst the white settlers there was very little. A few cases of dysenteric diarrhœa, brought on in most cases by drinking stagnant water; of ophthalmia, from want of cleanliness; and of skin eruptions, from profuse diaphoresis. Of fever there was very little, one death only occurred during the three years in which the country was occupied (remittent of a low type, occurring at a time when food was scarce and of a very inferior quality). One man died, a few days after landing, from old hepatic disease; one was drowned, and one murdered by the natives. Two or three cases of insolatio occurred, but all recovered; likewise a few cases of

of scorbutus; but this was before the garden commenced yielding its plentiful supply of pumpkins, melons, vegetable marrows, bananas, and sweet potatoes.

The seasons may be divided into the rainy, which commences in December and terminates in March or April; and the dry, which occupies the remaining months. This latter may advantageously be subdivided into hot and cold, the latter beginning as soon as the rains have ceased, attaining its lowest temperature in June and July, after which the thermometer rapidly rises until the rains commence, still continuing high during their prevalence. The greatest quantity of rain which fell during twenty-four hours, in 1866, took place on January 15th, when the gauge indicated 4·625 inches, more than four inches of which fell during the night. The subjoined meteorological tables for 1865–1866, contain full information respecting the various barometric and thermometric readings. A list of the birds to be found in the northern territory is also added: turtle are to be obtained in March and September on many parts of the coast, some of the largest weighing about 350 lbs. Kangaroo, wallaby, opossums, wild turkeys, emu, jabairu, native companions; wild geese and duck are plentiful, especially the latter, which are allied to the whistling Teal; they are only partially webb-footed, roost on trees, seldom taking to the water except when wounded, on which occasions they often elude the pursuit of the sportsman by diving, an accomplishment in which they are adepts. Alligators are numerous along the entire coast, the largest seen being about twenty-five feet long. Mosquitoes are very troublesome; they may be divided into two principal kinds; viz., the large black ones sometimes attaining a length (inclusive of proboscis) of nearly half an inch, and the small, striped brown and black, "Tiger mosquito," much fiercer than the preceding, although not more than half its size. Snakes are plentiful both in the sea and on shore; of the former, Stokes watersnakes are not so common as another kind of a very light greyish green colour, varying in length from four to eight feet. Of the land ones, many are found in trees. The diamond carpet and whip-snakes are by no means rare. Many are poisonous, causing death in a man in six hours.

METEOROLOGICAL TABLE between August 1865 and July 1866 inclusive; Latitude, about 12° South. Instruments supplied from the Observatory at Adelaide, South Australia. Observations taken and Instruments placed strictly in accordance with Observatory Rules.

	THERMOMETER.															Rain-fall.	BAROMETER.		
	Dry Bulb.			Wet Bulb.			In the Sea.			Solar Radiation.			Terrestrial Radiation.				On Sea Level.		
	Maximum.	Minimum.	Medium.	Maximum.	Minimum.	Medium.	Maximum.	Minimum.	Medium.	Maximum.	Minimum.	Medium.	Maximum.	Minimum.	Medium.	Maximum.	Maximum.	Minimum.	Medium.
1865:																			
August	100	63	80				76	70	72							nil	30·09	29·80	29·93
September	99	71	82				83	70	75							nil	30·09	29·77	29·95
October	103	75	85	No observations			86	78	80	No observations						·50	30·10	29·80	29·96
November	102	78	88				91	78	82							1·25	30·09	29·89	29·98
December	103	78	89				90	80	83							2·80	29·95	29·65	29·83
1866:													On Cotton.				33 feet above Sea Level.		
January	93	72	83	89	69	79	89	83	84	151	127	136	80	71	75	4·62	29·95	29·66	29·77
February	93	72	82	86	69	79	91	82	85	152	125	139	79	70	77	2·35	29·91	29·51	29·70
March	95	71	82	89	70	79	91	82	86	143	123	133	77	71	74	1·49	30·03	29·74	29·86
April	95	78	83	–	66	–	87	76	80	144	125	133	75	69	74	2·79	30·05	29·81	29·91
May	92	61	78	–	57	–	85	76	80	136	117	122	76	60	68	·48	30·03	29·83	29·91
June	89	58	77	–	50	–	83	74	77	125	114	119	71	55	62	nil	30·12	29·90	30·02
July	91	50	73	–	43	–	82	72	75	125	116	119	67	40	59	nil	30·12	29·92	30·03

In 1865, the first fall of rain took place, October 22nd, at 7 p.m. The wet season commenced in the beginning of December, at which time the first thunderstorm took place. During the rainy season, the winds vary between W. and N. Towards April they are southerly, from which time until August, south-easterly. During the remainder of the year, calms and light variable winds prevail.

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List of Birds found on the North Coast of *Australia*.

Aves.

Ichthyiætus leucogaster.	White-bellied sea eagle.
Haliastur leucosternas.	White-breasted sea eagle.
Pandion leucocephalus.	White-headed osprey.
Astur approximans.	
Milous affinis.	Allied kite.
Strix delicatula.	Delicate owl.
Athene Boobock.	Boobook owl.
Podargus phalœnoides.	Moth feathered podargus.
Eurostopodus guttatus.	Spotted goatsucker.
„ albogularis.	
Merops ornatus.	Australian bee-eater.
Eurystomus Australis.	Roller, or dollar bird.
Dacelo corvina.	Fawn-breasted kingfisher.
Halcyon sanctus.	Sacred halcyon.
„ pyrrhopygialis.	Red-backed kingfisher.
„ Mac Leayii.	Mac Leay's kingfisher.
Artamus leucopygialis.	White-backed wood swallow.
Grallina Australis ♂.	Magpie lark; pied grackle.
Graucalas melanops.	Black-faced crow.
„ hyperleucus.	White-bellied shrike.
Campephaga, species uncertain.	
Dicrusus bracteatus.	Spangled drongo shrike.
Myiagra concinna.	Flycatcher.
„ laterostus.	Broad-billed flycatcher.
„ plumbea.	
Micræca flavigaster.	Yellow-bellied flycatcher.
Anthus Australis.	Lark, Australian pipit.
Chlamydera nuchalis.	Great bower bird.
Sphecotheras flaviventris ♂, ♀.	Yellow-bellied wasp hunter.
Oriolus, sp? young.	Oridla.
Pomatorhinus rubiculus.	Red-breasted pomatorhinus.
Myzomela obscura.	Obscure honey-eater.
Glyciphila fasciata.	
Melithreptus albogalaus.	White-throated honey-eater.
Zooterops luteus.	Yellow zooterops.
Cuculus, sp? young.	
Centropus maccrourus.	Swamp pheasant cuckoo.
„ phasianus.	Ditto.
Cacatua galerita.	Sulpur-crested cockatoo.
„ sanguinea.	Blood-stained ditto.
Calypterinchus naso.	Western black ditto.
„ Leachii.	Leaches ditto ditto.
Aprosmictus (phistes) coccineopteris.	Crimson-winged long.
„ erythropterus.	
Platycercus Brownii.	Brown's parroquet.
Trichoglossus versicolor.	Varied loriquet.
„ rubritorquis.	Red-coloured ditto.
Chalcophaps chrysochlora.	
Phlinopus Swainsonii.	Swainson's fruit pigeon.

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Geopilia tranquilla.	Peaceful dove.
„ humeralis.	Barred-shouldered ground dove.
Hæmatopus fulginosus.	Sooty oyster-catcher.
Lobivanellus personatus.	Wattled plover.
Charadrius Xanthocheilus.	Golden plover.
Hemantophus leucocephalus.	White-headed stilt.
Schæniclus albescens.	Little sandpiper.
Glottis glottoides.	Green shank.
Numenius minatus.	Minute curlew, or little wimbrel.
Gerontieus spinicollis.	Straw-necked ibis.
Platalea regia.	Black-billed, or royal, spoonbill.
Megapodius tumulus	Jungle fowl of Port Essington.
Herodias greyi.	White reef heron.
„ piscala.	Pied egret.
Mycteria Australis.	Australian jabiru.
Nycticoeax calidonicus.	Nankeen night heron.
Dendrocygna Eytoni.	Eyton's tree duck.
Phalacrocorax sulcirostis.	
Thalasseus terresii.	Indian tern.
Sterna—young, sp. uncertain	Tern.
Hydrochelidon fluviatilis?	Marsh tern.
Grus Australasianus.	Native companion.

Appendix, No. 3. App. No. 3.

PHYSICAL GEOGRAPHY, METEOROLOGY,

AND

MEDICAL TOPOGRAPHY

OF

SOMERSET, CAPE YORK, NORTH AUSTRALIA,

(continued and concluded)

BY

SURGEON T. J. HARAN, R.N.

(In Medical charge of Marine Detachment there.)

THE general description of the Physical Geography of the terminal portion of the York Peninsula more immediately connected with the settlement of Somerset, embodied in my remarks for 1864–65, contains concise but comprehensive observations on the geology, physical outline, and productions of this remote region. More minute details on these subjects, as well as notices of the currents amongst the reefs, would no doubt possess considerable interest, but are not essential to the investigations of sanitary science: I therefore abridged my notes on each to the smallest compass compatible with clearness and accuracy of detail, and confined my observations to the brief allusions made to physical structure in its relation to medical geography, and sanitary status. I now find, however, that before proceeding to the consideration of "meteorology," the most important link in the chain of causes which determine the characteristics of climates as well as their medical geography, it is necessary, in order to give this paper a completeness which would be wanting otherwise, to refer briefly to a few of the physical conditions especially mentioned in my last. They comprise the following:—

1st. "The rapid disintegration which the solid ironstone rocks forming the surface layer of all the ridges and plateaux were undergoing, wherever the dense scrub was cleared away so as to admit the action in full force of the sun's rays and other atmospheric agencies." I have now to observe that these ironstone rocks admit of two divisions; one consisting of consolidated blocks of ironstone clay, and the second of nodules of mineral iron of highly magnetic properties: the former (clay carbonates) have crumbled away to such

 an

App. No. 3. an extent under the conditions alluded to, that from one to two feet of reddish, and tolerably rich loam, capable of producing abundance of vegetables, can now be found where nothing but solid rocks, and the scanty amount of vegetable débris in the crevices between them, could be seen when they were laid bare in 1864. The latter have undergone no change. It is worthy of remark, however, that in the exposed and sparsely wooded plains, where blocks and nodules of this description are scattered abundantly, they present a cribriform appearance. In connection with the subject of more productive soil, I have also to state that the pasturage in the vicinity, and for a considerable distance beyond the settlement, has been greatly improved, from having been kept down, trampled, and partially manured by cattle, horses, and sheep, and that the improvement in both these conditions augurs favourably for the future of the settlement in a self-supporting point of view.

2nd. "The hypothesis that Albany Island must have at some remote period formed an integral portion of the main land." This hypothesis was based on the configuration of the opposed surfaces of continent and island, and the occurrence of a slight shock of earthquake in March 1865. The recurrence of this phenomenon with increased force in December 1866 proves that this portion of the continent must be subject to such visitations, and also admits of the conclusion, that during some violent manifestation at some remote period of the igneous power which produced the very mild phenomena observed at Somerset in 1865 and 1866, this island was rent from its connection with the mainland, leaving a rugged chasm of division between the two, which now constitutes the Albany Pass, a narrow strait, nowhere more than one-third of a mile wide. Some convulsion of the kind must have formed this island, for no mere eroding action of tide or current could have channelled such a passage, from sixty to 80 feet deep in the centre, through the solid basis of granite, and other felspathic rocks which form its bed.

3rd. "The assumption that the high tides observed in the small bays in the Albany Pass at 'irregular periods' were caused by the extent and configuration of the reefs in the vicinity, the narrowness of the pass itself, and counter currents, &c."

I have since discovered that there are no counter currents such as I assumed, and the following is submitted as the corrected explanation. It consists of:—

1st. The position of Albany Island inside the "great Barrier reef," and the numerous shoal patches south of it, which are so disposed as to direct the largest quantity of the waters they enclose into the narrow pass between it and the mainland. This formation and the progression of large bodies of water from a comparatively open space through a narrow channel will account for the velocity, six to seven knots, with which the tides rush through at all times, and,—

2nd. The funnel-shaped opening which the pass presents to the southward, in the direction of the south-easterly trade wind. This disposition attracts, as it were, this wind in its greatest force, for I have

have observed that some miles to the southward its strength invariably diminishes; it therefore follows that whenever it blows with most force, the water in the shallow passages inside and between the reefs must progress more rapidly, and that on these occasions a greater accumulation than usual must take place in the pass, which will account for the irregular high tides and the increased velocity, nine to ten knots, which they then acquire.

"High tides" of this description are never observed except with strong south-easterly winds. I have also noticed that with more moderate force of wind, when the accumulation of water in the pass was not sufficient to create these "irregular high tides," a continuous flow, in short, ebb, occurred occasionally and lasted from twenty-four to forty-eight hours. The same phenomenon, in a minor degree and reversed, was observed twice with strong north-westerly winds. The velocity with which the tides rush through at all times, and its rocky bottom, must detract very much from the merits of the pass as an anchorage, while Port Albany, the only one of the small bays adjoining which affords safe anchorage, is too small to be of much use. This disadvantage, however, can be remedied if necessary, by laying down moorings along the borders of the reefs occupying all the small bays, and forming a sort of fringe along both sides of the pass, which is only interrupted where bluffs project from either shore.

It is almost superfluous to add, that at both extremities of the pass secure anchorage will be always found inside the "barriers" and on the lee side of the coral reefs and islands.

4th. The opinion advanced that the "geological formation and physical aspect, &c. obtaining at Somerset extended a considerable distance to the southward." Information derived from a few sources and personal inspection of the coast on four occasions enable me to state with some confidence that, with certain modifications, it does extend as far as Cape Melville in lat. 14° 10′ S., where it would appear that granite and trap formations become superficial, and from which parallel a complete change becomes observable in the physical outline and vegetation of the continent, the rounded hills and ridges to the north becoming replaced by bold and picturesque mountain ranges, and arid sandy flats sparingly covered with coarse wire grass by fertile valleys and verdant plains.

The enormous development of the coral system on the north-east coast of Australia is another subject of so interesting a character that I should like very much to refer to it briefly; but, as space will not admit of my doing so now, I must only defer it to a more favourable opportunity. I therefore proceed to the consideration of

Meteorology.

The Tables annexed contain the condensed results of three years' uninterrupted observations, registered as follows: viz., Barometer, every third hour between 6 a.m. and 9 p.m. (inclusive), and frequently at night, especially on the critical days, the 21st of each month. The "dry" and "wet bulb" thermometers at the same hours. The elastic force of aqueous vapour and humidity were calculated

App. No. 8. calculated from the difference between the temperature of the air in the shade and that of evaporation in the usual manner. Self-registering thermometers at 9 a.m. daily; also the amount of rainfall for the twenty-four hours. The direction and force of the wind in the same hours as the barometer, and also at night whenever the force was greater than usual. The portion of sky obscured was noted every third hour by day, and frequently by night, and the ozone papers were inspected and removed at 9 p.m., to note the amount of this agent by day, and at 9 a.m. the quantity for the twenty-four hours.

The position of Somerset on the mainland, the almost insular character of the Cape York district in its immediate vicinity, and its proximity to the islands in Torres Straits, combine to render it a most eligible post for observing the meteorological phenomena of a considerable area surrounding it, which I will assume embraces the seaboard of the continent as far as the line of Cape Melville, and the islands of Torres Straits as far as New Guinea.

The Tables from 1 to 4 (inclusive) have been compiled and condensed with the view of showing at a glance the mean results for the months, the years, and the seasons, while Table 5 shows the means for the three years; more extended observations would, no doubt, be still more satisfactory, but I doubt if they could afford more conclusive results than those contained in the different columns of Table 5, which I am satisfied, from what I have observed in the course of the seasons at Somerset, affords a trustworthy average of the general character of the climate, not only of Cape York, but also of the area just defined.

In explanation of the division of seasons adopted in the Tables, I have to remark, that although the division into "dry" and "rainy," obtaining in all tropical climates, each of which extends over a period of six months, is within certain limits equally applicable at Cape York, I consider that another, based on alterations of atmospheric pressure and temperature, is still more appropriate: 1st. Because the setting-in of the rains does not, as in other tropical climates, altogether depend on the sun's more or less vertical position, but appears to be controlled by the prevalence or the reverse of the south-east trade wind; and, 2nd. Because it sets-in three months later than happens in the same parallel of latitude in the monsoon region of the Indian Ocean, while it rarely lasts in full force more than from three to four months. The controlling influence of the south-east trade wind becomes thus evident, as the rains do not set in until it ceases in December, while they moderate considerably when it resumes its sway in March, and as a rule cease about the end of that month. This singular anomaly of a three months' "rainy" and a nine months' "dry season," though strictly defined by the diametrically opposite conditions of most of the weather phenomena obtaining in each, and depending, as just stated, on the prevalence or the reverse of the south-east trade wind, induced me to adopt a more practical division, possessing well-marked and distinct lines of separation, and founded on a series of gradations and changes in the atmospheric pressure and temperature observed at different periods throughout the year. It comprises: 1st. The "summer" or "very warm season," which includes the months of

"December

"December, January, February, and March;" 2nd. The "winter," or "comparatively cold season," which includes the months of "June, July, August, and September;" and, 3rd, an "intermediate or mixed season," in which the characteristics of the other two are combined and modified, and which prevails during the months of "April and May, October and November." These distinctions are sufficiently explanatory. App. No. 3.

I now proceed to the consideration of the leading phenomena, in the order in which the results are inserted in the Tables.

1st. "*Barometer.*"—The pressure of the atmosphere increases and decreases at Cape York twice in the twenty-four hours, as it does in all tropical and sub-tropical climates bordering on the sea, or in the vicinity of extensive bodies of water inland, which supply to it large volumes of aqueous vapour by evaporation. It is only within the tropics, however, that these diurnal variations occur with most regularity; the barometer attaining its maximum about 9 a.m. and p.m., and its minimum about 3 a.m. and p.m. The intermediate ascending and descending gradations proceed with corresponding regularity, and the assertion that any one accustomed to read the barometer can, within the tropics, tell the hour of the day by the height of the mercurial column, is by no means an exaggeration. Although several theories have been advanced to account for these remarkable oscillations, none of them can be considered satisfactory, neither, Espys of a dynamical force exercised by the quasi-explosive eneagy of the ascending vapour in the morning, and by the momentum of the descending vapour in the evening, when its density is increased by reduction of its temperature; for the maxima to which these conditions are assumed to give rise, occur with just as much regularity in arid deserts, where the amountof vapour in the atmosphere is almost imperceptible, nor a variety of others, including the electric, the solar, that of atmospheric waves, &c.; because the action of these agencies not being clearly understood, cannot be lucidly explained. The subject, therefore, must be considered still *sub judice*, although it is highly probable that electric and solar influences combined produce these periodic fluctuations. Reference to the Tables will show that an annual variation, dependent on the sun's relative position, takes place in the height of the barometric column, the "minimum" occurring during the "hot," and the "maximum" in the "cool season." There is no difficulty in explaining the cause of this fluctuation. It is the following: the evaporation from the surrounding sea, considerable at all times, must be enormous during the "hot season," and this increase, combined with that from the land, then sodden with rain, and the expanding effects of solar heat, *per se*, must lighten the superincumbent atmosphere considerably, hence the diminished pressure. During the cool season, the effects of solar heat are at their minimum, and the evaporation becomes reduced accordingly, hence increased density of atmosphere, and statical pressure. During the "intermediate season," a medium amount of pressure obtains; as a rule, the lowest reading is observed in January or February, and the highest in July or August; the ascending and descending gradations for the intervening

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intervening months being well-marked; slight discrepancies, the result of variations in temperature, evaporation, and especially in the rainfall, will however be found in some of the readings for the different months. They interrupt a succession which would otherwise possess the regularity of the semi-diurnal oscillations. The daily range of the barometer rarely reaches the 1-10th of an inch, and seldom exceeds the 1-5th; as a rule, it is greater in the "hot season" than in the "cool" or "intermediate," and for obvious reasons; while the mean range for the three years, ·106, a trifle more than the 1-10th of an inch, proves how little change in the atmospheric pressure must take place throughout the year, and in connection with local appearances, and our knowledge of the course of hurricanes in the Indian and South Pacific Oceans, that this region is not subject to their devastating fury.

The mean height of the barometer for the three years, 29·867 which, in round numbers, is less by ·100 (1-10th of an inch) than that assigned by Maury to the same parallel of latitude, further demonstrates the greater proportion of aqueous vapour evaporated from the surrounding shallow sea than from the deeper ocean, where the observations from which his Table was compiled were registered.

2nd. "*Hygrometer*."—The data derived from the observations of the "dry" and "wet-bulb" thermometers, constituting this instrument in addition to the especial value they possess as indicators of the elastic force of the aqueous vapour mixed with "dry air," and of the amount of resulting humidity of atmosphere, become no less important when considered in their relation to medical geography; for in tropical climates, where the temperature must of necessity be high, a few degrees difference in the range between the "dry" and "wet-bulb thermometers" affect one's sensations in a remarkable manner. With a range of above 10°, the climate feels quite different from what it does with a range of 3°, 2°, 1°, or 0°, while at 15°, 16°, or 17°, the highest noted, the air becomes so dry, clear, and as it were light, that the climate exactly resembles that of the south of Spain or Italy. The mean range for the three years, 4·2°, is an unerring indication of the very large amount of moisture contained in the atmosphere at all times, and how rarely the high ranges just referred to can occur. As a rule, the highest range is observed by day, and the lowest at night, the exceptions being rainy weather, and the saturated condition of atmosphere which precedes the rains, and which is as likely to happen by day as by night. The season variations occur in the following order: reference to the range columns will show that the minimum ranges occur during the "hot" or "rainy season," the maximum during the "intermediate season," and the medium during the "cool season;" the reason is obvious, for in the "hot" or "rainy season," the atmosphere is saturated with moisture, with the exception of short periods succeeding each rainfall, when it becomes comparatively dry; there can, therefore, be but little difference between the temperature of air and that of evaporation at this season, except on those occasions. During the months of April and May succeeding, and October and November preceding, the rainy season, the solar heat is very great, and

and maintains an unusually dry state of atmosphere by day, which, in connection with the heavy dews which prevail these months, produces the high range of this season. The greatest range, 17°, occurred in September 1865, and April 1867, with the wind at S.W., and finally, during the "cool season," the average temperature, diminished solar power, and a damp-trade wind combined, maintain a more equably saturated condition of atmosphere than obtains at the other periods; hence the medium range. The elastic force of aqueous vapour corresponded in degree with the amount of evaporation, and its high mean ratio for the three years ·834, over 4-5ths of an inch, proves how largely aqueous vapour contributes to the general atmospheric pressure at Cape York. The columns containing the "means" of "atmospheric humidity" are sufficiently explicit: they prove conclusively how the atmosphere must at all seasons contain a very large amount of moisture; while, for at least, one-third of the year during the "rainy season" it is generally in a state of complete saturation, or not far from it, although the mean range of humidity will be found highest for the "hot" or "rainy seasons," because the atmosphere then continues remarkably dry for a short period after each downpour. The maximum ranges during the three years were always observed at the "lunar periods," when, as will be explained further on, the S. E. wind ceased for one or more days, and was succeeded by W. or S. W. winds, which, from blowing over the land, had lost most of their moisture before reaching the settlement. These winds, so dry on these occasions, during the prevalence of the S. E. trade-wind, become loaded with moisture when the rainy season sets in, and the sun becomes vertical in his progress to the southward. App. No. 3.

3rd. "*Self-registering Thermometers.*"—The position of Cape York, in such close proximity to the equator, must expose it at all seasons to a high rate of average temperature. Reference to the Tables will show, that the mean temperature is considerable, and for the three years nearly reached 80°. Season modifications, attributable to the sun's relative position and the direction and force of the prevailing winds, have been observed and registered from time to time, while at all seasons the temperature at night has maintained a comparatively low standard. During the six months that the sun's more direct influence is brought to bear on the southern hemisphere, the heat at mid-day, and indeed between 9 a.m. and 3 p.m. is, as a rule, intense; it increases progressively from the middle of September, and becomes very often oppressive during the sultry weather which precedes the rains. Once they set in, the excessive amount of atmospheric humidity which produced the sultriness is precipitated in the torrents which then fall, and a dry and most agreeable condition of atmosphere succeeds, which continues until the process of saturation, constantly in progress, owing to the great heat, again reaches a limit of oppressiveness which can only be relieved by more precipitation; and thus alternate at this season the allied processes of evaporation and precipitation, both powerful agents in counteracting, by their cooling influence, the intense heat which produced them in excess. During the remaining six months, from March to September (inclusive), when the sun's more direct influence is withdrawn,

App. No. 3. drawn, the weather becomes correspondingly cool and enjoyable; more especially in June, July, August, and September, when the temperature at night usually falls to 70°, or a few degrees below it, and occasionally sinks to 61°, the lowest registered. The relative amount of heat and cold of any climate within the tropics must be estimated, not by the difference between the mean temperature of the seasons, but by comparison of the daily, monthly, and annual ranges; for the higher the range the more likely is the climate to be agreeable, and *vice versâ*. Reference to the Tables will show, that at Cape York the ranges, as a rule, are considerable, but not to be compared to those noted in the southern parts of the continent, while the difference between the means of the "hot" and "cool seasons" for the three years amounts to only 3·9°. An estimate, therefore, founded on this small range, and the high averages from which it is taken, must be erroneous, as it favours the conclusion that the average temperature throughout the year not only maintains a high standard, but that the variations to which it is subject are inconsiderable; whereas an inspection of the ranges for the three years will prove, what experience has confirmed, that although the mid-day heat, as a rule, is high at all times, and frequently intense in the "hot season," the comparatively low temperature at night invariably acts as a salutary counterpoise, and renders not only bearable, but agreeable, a climate which, under the former conditions, would be as sultry and oppressive as that of Western Africa.

The months of April and May, October and November, occupying as it were an intermediate position between the "hot" and "cool seasons," partake of the characteristics of both, and possess an intermediate average temperature. The transitions which take place during these months (1st, from great heat to comparative cold, and 2nd, from comparative cold to great heat) occur so slowly, that they are not calculated to be so injurious to health as more sudden vicissitudes. The highest as well as highest mean ranges were registered in the "hot seasons," and were produced by the alternations of intense heat preceding, and the sudden diminution of temperature accompanying and succeeding, the heavy rainfalls which occur almost daily at that period. The minimum ranges of the "cool season" are caused by diminished mid-day heat, and the mean of the "intermediate months" by the medium rate of mid-day heat which prevails during this period.

The relative position of the sun at the different seasons regulates the amount of direct solar heat transmitted. During the hot season it gains its maximum, the sun being vertical, or nearly so, the greater part of the time; but its intensity, modified at all seasons by the same cause, is then especially so by the dense canopy of clouds, produced by excessive evaporation, which obscures the sky by day, and forms an awning which intercept its rays. The sky, after heavy downpours of rain, is frequently cloudless at night in this season. The minimum quantity of solar heat is registered during the cool, and the medium during the "intermediate," and for reasons which need not be repeated.

The results derived from observations with the "minimum" grass thermometer,

thermometer, indicate in an equal degree the amount of solar heat absorbed by day and radiated at night. The minimum results occur in the "cool season," for then the smallest quantity of heat is absorbed in the southern hemisphere, owing to the sun's greater northern declination, and the sky is generally so clear of clouds at night, that radiation proceeds unchecked, until the dew-point temperature is attained. The maximum results were noted during the "intermediate season," especially in the months of October and November, preceding the rainy seasons, when a less clouded state of atmosphere by day admits of increased absorption of heat by the parched earth, while a more clouded condition of the sky by night retards its radiation in a corresponding ratio; hence the retention of heat by the ground. The medium temperature registered by this instrument in the "hot season," is accounted for, 1st: By the cloud awnings which prevail most at that season, and prevent the sun's rays from penetrating the earth except in diminished number and power; 2nd, By the sodden condition of the ground the most of the time, and the cooling effects—by rendering heat latent—of the evaporation constantly taking place from it; and 3rd, By the frequently cloudless state of the sky at this period, and the uninterrupted radiation thence resulting. The differences in the results obtained from the self-registering thermometers, trifling as a rule, became especially remarkable in the year 1866, when for some months the temperature in the shade was reduced by 3·5°, and for the whole year by 1·5° from that of 1865, while the mean maximum of direct solar heat became reduced by 7·4°. In temperate climates reductions like these would be almost inappreciable, but within the tropics, where every degree of heat above or below 80 becomes important, they are not only felt but fully appreciated if below that standard.

4th. "*Rain-guage.*"—The annual rainfall presents the most remarkable discrepancies of any or of all the meteorological phenomena observed at Somerset. As will be seen by the Tables, it varies in quantity, not only from year to year, but likewise in its manner of distribution or precipitation from month to month. Some years it would appear, from its comparatively small amount for a tropical climate, as if the influences which produce periods of drought in extra-tropical Australia extended as far as Torres Straits. As a rule, the heaviest monthly averages fall during the rainy season, from December to March (inclusive); but I observed, in 1867, that when this rule was not observed, an unusual amount of rain fell in April and May, as if by way of compensation. It is worthy of remark, that the total quantity of rain which falls during the "dry" or south-easterly wind season appears to be regulated by and stands in an inverse ratio to that of the "rainy season," and that the minimum occurs in the months of August, September, and October, although the atmosphere during the latter two months contains a large amount of humidity.

The rainfall for 1866 amounted to 103·35 inches, a not inconsiderable ratio even in a tropical climate. It was nearly double that of the previous year, and to its re-acting influence I attribute the modifications observed in the remainder of the meteorological phe-

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nomena, viz., diminution of atmospheric pressure, of temperature in shade and sun, of force of wind, and amount of ozone in the atmosphere, but increase of humidity and cloudiness of sky. By comparison of the monthly rainfalls of two separate stations at this settlement, I found that though the daily amounts varied frequently, the monthly differed but little, a clear proof that on this part of the peninsula the rainfall is equably distributed.

5th. "*Direction and Force of Wind.*"—This the most northern spur of the Australian continent is singularly situated as far as regards prevailing winds; for while the more southern portions of the north-west coast are within the influence of the north-west and south-east monsoon winds, which blow six months either way, at Cape York the south-east trade-wind prevails with few interruptions for nine months of the year, or from the middle of March to the middle of December, and variable winds with frequent calms during the intervening three months. Further to the southward on this north-east coast, within the tropic the south-east wind prevails throughout the year, its average strength depending on the season and the sun's position. It ceases frequently at night, and becomes replaced by a land breeze; but in proportion as the York peninsula becomes more and more contracted, and presents diminishing surfaces to be heated by the sun's rays, these land winds at night become correspondingly rare; until at Somerset, where the peninsula is not more than twenty miles wide, such variations, while this wind continues, only occur occasionally at full, change, or quarterings of the moon, and very irregularly even then. I must therefore conclude, that while the monsoon winds of the Indian Ocean prevail in full force not more than 100 miles to the north-west of Cape York, and the south-east trade-wind prevails all the year even within the same limit to the southward, the area of which Somerset forms a portion must constitute during the rainy season a belt or region of "variables" and "calms," the limits of which are subject to variations dependent on the sun's more or less vertical position, but which is, nevertheless, more within the influence of the south-east trade than that of the monsoon system, inasmuch as south-east trade-winds frequently prevail during the "variables" of this season. The columns of wind direction in the Tables prove conclusively the prevalence of this wind for more than nine months of the year, while the irregularity of those prevailing the remainder, taken in connection with the steadiness of the former, can admit of no conclusion except the foregoing. The electric manifestations which precede the cessation of south-easterly wind in December, and its return in March, and the occasional prevalence of north-westerly winds, while it is kept in abeyance by the sun's position, constitute the only shadow of a claim which could be adduced in support of this alternation of winds being entitled to the designation of monsoons, and that is speedily set aside by the fact that the winds which succeed the south-easterly blow irregularly from all points of the compass. The south-easterly wind, like all steady winds, blowing over a wide expanse of sea without interruption, arrives here pretty well saturated with moisture. Its force varies with rare exceptions diurnally, and at different periods monthly. By day it blows, as a rule,

with

with diminished force, owing, no doubt, to the expanding influence of solar heat; but no sooner does the sun set, than its force increases, and usually at night it blows strongly, and frequently with a velocity of from fifteen to twenty-five miles an hour, as indicated by the anemometer. I have also noticed that the average force is greatest in the intervals between the "lunar periods," when, as already stated, this wind sometimes either ceases altogether for one or more days, and is replaced by calms, or north-westerly or south-westerly winds, or alternates with the latter, when both the south-easterly blowing by day, and the south-westerly or north-westerly at night, assume the character of "land and sea breezes." Why these cessations or alternations should occur at these periods I cannot account for; in all probability they are produced by lunar attractive influence, acting on the atmosphere in a somewhat similar manner as it does on the sea in the production of the "tides," and that the irregularity or want of periodicity observed in the recurrence of these phenomena must be attributable to the ever-varying density, elasticity, and expansibility of the aëreal ocean, which will not admit of the steady manifestation of the lunar power, like the inelastic, non-expanding, and nearly incompressible aqueous ocean. These interruptions never occur four times in succession, and seldom more than twice in one month. When they do not take place, I have always observed that the wind blows with more than ordinary force. The direction of this wind varies considerably in the twenty-four hours. It is generally east-by-south, or east-south-east in the morning, it then veers gradually, and follows the sun until it reaches south-east or south-south-east in the evening, and at night it backs to the former points. I have also remarked that its direction is more easterly the two months succeeding its advent in March, and the two preceding its cessation in December, than it is during the intervening period. The results for the three years in Table 5 will show that the maximum pressure occurred in the "cool season," but it does not vary much from that of the "intermediate"; indeed, no definite rule can be laid down on this subject, especially as more extended observation is required for determining the pressure for the separate seasons than for the data derivable from any of the remaining phenomena. The force of the irregular winds which prevail during the hot season varies from that of the strong squalls preceding the rains, to that of light airs not differing much from a complete calm.

6th. "*Portion of Sky obscured.*"—The sky is generally much clouded by day at all times, while the nights, except occasionally during the rainy season, are comparatively clear, and sometimes cloudless. This clouding acquires its greatest development during the "hot season," when the clouds chiefly consist of dense masses of electrically charged cumulus or cumulo-stratus. At this season they are generally stationary, owing to the calms or light winds which for the most part prevail. When the south-easterly wind sets in, the cumulus and cumulo-stratus forms are to a great extent replaced by the fleecy cirrus and pretty cirro-cumulus which are constantly forming, and borne away in the layers of clouds passing overhead, with a velocity proportionate to that of the wind at their

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respective levels. The minimum amount of clouding is registered in the "intermediate season;" as after the rains and before them the wind blows with considerable strength and velocity, and by preventing its ascent to cooler levels, it interferes with the condensation of the vapour, which is borne away in an invisible form. The formation of clouds is thus to a certain extent prevented, and the sun's rays have free access to the earth, especially in October and November, when it assumes a parched and dried-up appearance. It is worthy of remark that, at this season, the maximum amount of clouding at night was observed.

7th. *Ozone.*—Having carefully noted for two and a half years, at 9 a.m. and 9 p.m. daily, the amount of ozone in the atmosphere, as indicated by slips of paper prepared on Dr. Moffatt's principle, I find that its amount varies according to the direction and force of the prevailing winds: it attains its maximum during strong sea winds, no matter from what quarter they proceed, and its minimum during calms, or light winds blowing off or along the land. The amount is also greater by night than by day, owing, no doubt, to the greater force of the wind by night. With strong south-easterly winds, and the squalls of the rainy season, I have observed the maximum of discoloration in Dr. Moffatt's scale exceeded in even twelve hours; while during calms or light land winds the papers were not discoloured at all, or only very slightly. The mean for the period, 5·9 (Dr. Moffatt's daily maximum being 10), clearly indicates that, no matter what may constitute the component ingredients of this agent (whether oxygen in an allotropic state, or some combinations of chlorine), the atmosphere of Somerset, Cape York, contains a considerable average quantity of it: Table 5 shows the largest average for the cool seasons, the smallest for the hot, and the mean for the "intermediate" months—results which correspond with the relative force of the wind in each season.

I shall now endeavour to utilize the foregoing analysis of the leading meteorological phenomena which constitute the climate of Cape York, in the following brief consideration of its

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Of all the conditions, whether of physical structure and formation or climate, which within the tropics are assumed to be capable of exerting an injurious influence on health, either by direct action, or indirectly, by contributing ingredients requisite for the formation of the noxious exhalations which usually prevail, the following constitute the few which obtain at Cape York, viz.: 1. A high rate of solar heat at all times, but more especially when the sun is in the southern hemisphere; 2. a high annual mean ratio of temperature in the shade; 3. abundant vegetation; 4. an exceedingly humid atmosphere; and, 5. a soil chiefly ferruginous, which is supposed to be especially insalubrious.

With a rich fertile soil and rank vegetation co-existing with the first three conditions, no doubt noxious exhalations would be developed in abundance; but the soil here is for the most part especially poor and unproductive, and, moreover, so porous, and non-

non-retentive of moisture, that it is only during the rainy season that any vegetation bearing even a distant resemblance to tropical can be seen; but every vestige of it speedily disappears after the heavy rains cease, and for the remainder of the year the vegetation consists of the foliage of the forest trees and the long wire-grass which covers the valleys and plains, neither of which, although they appear luxuriant from a distance, will on close inspection be considered capable of aiding in the evolution of malarious emanations. Three years' experience has proved that no such emanations exist, for not one case of any of the periodic fevers which they engender has occurred, even though frequently during the hot rainy season the flat adjoining the settlement of Somerset was saturated and partly converted into a swamp, and damp exhalations from it must have penetrated everywhere for a considerable distance around.

That diseases of this class would prevail at Cape York, were the conditions of soil and vegetation favourable to their development, we have ample proof in the fact that at Cardwell, Rockingham Bay, situated on the north-east coast, exposed to the trade wind, in about lat. 18° 30′ south, and at Burke Town, at the head of the Gulf of Carpentaria, in about lat. 17° 20′ south, settlements founded recently, and possessing rich alluvial soil and rank vegetation, low and sometimes very fatal fevers of remittent type prevail during and for some time after the rains. At Burke Town, in 1865, about 75 per cent. of the inhabitants died of what was described to me as a very asthenic form of bilious remittent (malarious yellow) fever, which after a short but uncertain period was supposed to have acquired contagious and infectious properties from overcrowding, and a complete disregard of all sanitary precautions. Whether this outbreak was or was not infectious, I am unable to state positively, as the data from which my information is derived were very indefinite. I can however, assert from them, that the intemperate habits of the settlers contributed largely to the high ratio of the mortality which occurred during the epidemic.

The conditions of soil and vegetation obtaining at Cape York having been proved innocuous, and that therefore no endemic disease can exist, the influence of direct solar heat, mean temperature, and atmospheric humidity, in the production of disease has to be considered next. The settlement is situated so close to the equator, that were these conditions to exist in full uncontrolled force, life in it would be barely tolerably, while sunstroke, cerebral, hepatic, and other disorders produced by great heat would be of constant occurrence; but they cannot exist in full force as the analysis of the meteorology clearly demonstrates: it shows how the direct solar heat provides a potent antidote to its probable injurious effects in the excessive amount of evaporation which it produces in the adjoining sea, and which not only tends to cool the surface by the heat which it renders latent, but forms cloud awnings which intercept the sun's rays. This heat is likewise modified for nine months of the year by the south-easterly trade wind, and to such an extent, that the men of the detachment could work in the open air at all hours of the day, provided they were exposed to its influence, and during the very hot season by the cooling effects of the heavy rains which then fall.

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The analysis shows how this excessive amount of evaporation is prevented from accumulating in excess, and thus becoming intolerably oppressive,—1st. By the copious rains of summer; 2nd, by the occasional rains and heavy dews of the other seasons; 3rd, by the south-easterly winds which for over nine months of the year bear away to remote regions in the layers of cloud, and send constantly passing overhead a great deal of the vapour exhaled from the adjacent sea; and 4th, by the exceedingly porous and arid character of the soil of the peninsula, which absorbs all the moisture it can lay hold of, and thus maintains a drier condition of atmosphere at all times, except when it happens to be sodden by rain, than would be possible otherwise.

To these modifying causes, and the reduced temperature which invariably prevails at night, this climate owes its exceptionally healthy character; but however it may be counteracted, a mean annual temperature in the shade of 80° must be relaxing and productive of progressive debility, even in the strongest constitution. To solar heat therefore, and the high degree of atmospheric humidity it produces, most of the diseases under treatment at Somerset during three years are distinctly traceable; the exceptions being accidents, one case of secondary syphilis, and one of palpitation of the heart. Due attention to sanitary requirements was observed in the selection of the position for the different Government buildings, all of which are so situated as to be exposed to the full influence of the prevailing winds, while their ventilation combines every arrangement that could be desired, and the water-closets are placed at a considerable distance from the houses, in situations where they are always on the lee side, no matter what the direction of the wind may be. In this respect all local causes of disease were avoided as much a possible, while the prophylactic measures adopted had an equally salutary effect: they consisted of, 1st, the avoidance of direct solar heat at mid-day as much as possible (this precaution, not especially called for during the prevalence of south-easterly wind, becomes absolutely necessary in the "hot season," during calms or light winds); 2nd, the wearing of light flannel clothing by day, but warmer material suitable for the different seasons at night (drill or duck trousers were worn occasionally, but always with flannel drawers); and 3rd, the following additions to their ordinary dietary, viz., a double ration of lime-juice and sugar daily, and an extra ration of preserved potato or compressed vegetables on salt-meat days, to guard against scurvy, as fresh meat was only issued about three times a week: and when, in 1866, two years after our arrival, I observed that the men were becoming progressively debilitated, and predisposed to rheumatism, which then appeared for the first time amongst them, I recommended the issue, as a tonic and nutritive stimulant, of a pint of ale or porter daily to each; this issue was followed by such satisfactory results, that I now feel satisfied that if they had been supplied with a similar ration from the beginning, it would have enabled their systems to resist the debilitating effects of climate, which eventually favoured the development of the rheumatic blood-poison, at any rate for a much longer period.

The prophylactic measures, therefore, which will be found most effectual

effectual in resisting the relaxing effects of the climate of Cape York comprise, 1st, avoidance of direct solar heat in calms or light winds, especially in summer; 2nd, moderate exercise; 3rd, the wearing of flannel clothing suitable for the season; 4th, a plain nourishing dietary, with lime-juice and preserved vegetables if fresh meat and vegetables cannot be procured, daily; and, 5th, stimulants in moderation; bitter ale is the best of any. App. No. 3

Three years' experience having fully established the fact that periodic fevers cannot prevail because the conditions essential to their development do not exist; while the spacious quarters provided, the sanitary prophylactic measures adopted may be assumed to have successfully combated here the tendency which must exist in all hot climates to the generation of other diseases of the zymotic class: as not one has occurred, although they are known to be prevalent in some of the other new settlements of Queensland, it must be inferred that, for the present at least, the constitutional diseases which are liable to occur at Cape York become developed through direct or indirect action of solar heat and atmospheric humidity.

The diseases produced by the action of direct heat which have been observed here, comprise: 1st, sunstroke, in its different gradations from vertigo and nausea to temporary insensibility (several slight cases of the first grade occurred in calm weather, but none more severe than one of temporary insensibility, which I was compelled to invalid eventually); 2nd, hepatic diseases and the disorders which spring from them; the former include simple congestion and acute or subacute inflammation, and the latter bilious diarrhœa, constipation, hæmorrhoids, and dysentery—one well-marked case of dysentery, the result of hepatic congestion, occurred; and, 3rd, cutaneous irritation resulting in phlegmons and ulcers.

The diseases produced by the indirect action of heat in combination with atmospheric humidity, include: 1st, rheumatism of a most obstinate character, which I attribute to the predisposing effects of progressive debility produced by a high state of temperature, which prepare the system, as it were, for the development of the blood-poison whose manifestations in the fibrious tissues, &c., are directly promoted by a high range of temperature and a humid state of atmosphere; to these causes I will add partial suppression of perspiration, as the disease did not become developed until the cool season set in; 2nd, diseases of the respiratory organs, especially of upper part of respiratory tract, produced also by vicissitudes of temperature and a damp atmosphere; and, 3rd, diseases of the ear, and ophthalmia, which owe their origin to the same cause as produce catarrhal complaints.

The high rate of temperature renders the climate especially unfit for infants or very young children, owing to the large amount of nervous irritation it tends to create in their delicate organization: this assumption was fully proved by the death of two infants, each about six months old; one from convulsions, and the other from acute meningitis, both the result of careless exposure to solar heat.

The following Tables, arranged for the separate Years, contain condensed MONTHLY ABSTRACTS of METEOROLOGICAL

Latitude, 10° 44' South. Longitude,

TABLE No. 1, for 1864. - - - - - - - - - - - - - - - - -

MONTHS.	Barometer.								Hygrometer.							
	Corrected for Temperature and Sea Level.								Dry Bulb.					Moist		
						Diurnal Range.										
	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Mean Maximum.	Minimum.
August - - - - - - - -	30·030	29·982	29·850	29·878	29·931	·150	·050	·104	81	78	64	70	74·	76	75	61
September - - - - - - - -	30·028	29·976	29·846	29·872	29·924	·156	·058	·104	84	80	68	76	78·	76	75	62
October - - - - - - - -	30·014	29·960	29·784	29·800	29·882	·164	·042	·160	85	80	74	77	78·5	78	76	71
November - - - - - - - -	29·992	29·954	29·762	29·822	29·883	·160	·060	·132	90	86	76	79	82·3	85	81	74
December - - - - - - - -	29·914	29·878	29·652	29·712	29·795	·164	·072	·160	95	87	77	83	85·	87	83	74
Sums - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Means - - -	29·995	29·950	29·778	29·816	29·883	·158	·056	·132	87	82·2	71·8	77	79·8	80·4	78	68·4

REMARKS.

AUGUST.—Wind South-easterly the whole month, except three nights, 18th, 19th, and 20th, when it shifted to the west, and backed again to S. E. by day. Force moderate by day, strong at night.

SEPTEMBER.—Wind from South-easterly points; between E. by S., or E. S. E. in the morning to S. E. or S. S. E. in the evening, throughout the month, without interruption. Force as above.

OCTOBER.—Wind from South-easterly points the entire month, except the 2nd, when it shifted during the day to the N. E. Force diminished.

OBSERVATIONS registered at Somerset, Cape York, North Australia, between the 1st of August 1864 and the 31st July 1867

142° 35′ 48″ East. Height above the Sea, 70 feet.

TABLE No. 1, for 1864.

Bulb.		Range		Self-registering Thermometers.									Rain Gauge.				
				In the Shade.					Diurnal Range.			In the Sun.		In one Day.			
Mean Minimum.				Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean	Maximum.	Mean Maximum.	Total Rainfall.	Maximum.	Minimum.	Mean.	Days of Rain.
														Inches.				
64			6	83	80·4	61	72	77·	21	5	12	120	104	·30	·06	·01	·04	10
67	7[illegible]		5	86	82·	65	76	79·6	21	6	12	118	106	·12	·04	·01	·02	7
74	75		5	87	83·	70	77	80·	20	5	11	122	108	·34	·06	·01	·04	8
79	81	10	6	95	84·	76	78	81·5	18	4	10	120	107	·60	·15	·02	·06	10
81	83	10	5	97	89·	75	79	89·5	22	5	12	122	110	7·45	2·10	·01	·62	12
–	–	–	–	–	–	–	–	–	–	–	–	–	–	8·81	–	–	–	47
73	75·8	10·3	5·4	89·6	85·6	69·4	76·4	80·3	20·4	5	11·4	120·4	107	1·76	·48	·012	·15	9·4

REMARKS.

NOVEMBER.—Wind South-easterly from the 1st to the 26th (inclusive); Northerly the 27th, variable the 28th and 29th, and North-westerly the 30th; distant thunder, W.S.W., and heavy showers the last three days.

DECEMBER.—Wind East by South and Easterly the 1st, 2nd, and 3rd, with fine weather; North-westerly the 4th, 5th, and 6th, with showers and distant thunder; South-easterly from the 7th to the 23rd (inclusive), with fine weather. Calms and squalls from the North-westerly between the 24th and 31st, with thunder, lightning, and heavy rainfalls.

TABLE, No. 2, for 1865.

MONTHS.	Barometer.* Corrected for Temperature and Mean Sea Level.					Diurnal Range.			Hygrometer, † Dry Bulb.					Moist
	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.
January	29·925	29·879	29·702	29·742	29·824	·148	·078	·088	94	89·			82·3	86
February	29·910	29·893	29·702	29·769	29·831	·146	·063	·102	90	88·			82·4	84
March	29·978	29·928	29·672	29·718	29·823	·160	·050	·100	95	89·3			83·6	90
April	29·993	29·946	29·768	29·813	29·879	·135	·068	·095	88	87·3				
May	30·086	30·007	29·778	29·817	29·912	·222	·072	·093	85	83·6				
June	30·079	30·017	29·750	29·792	29·904	·126	·070	·085	82	81·				
July	30·089	30·051	29·808	29·861	29·956	·132	·053	·092	80	78·6	69			
August	30·020	29·978	29·841	29·879	29·928	·159	·040	·087	79	77·6	73			
September	30·032	29·986	29·761	29·824	29·905	·136	·036	·100	87	82·	74			76
October	30·018	29·963	29·793	29·857	29·900	·138	·030	·104	87	83·6	77			78
November	29·986	29·942	29·768	29·823	29·882	·150	·054	·118	90	87·3	77		81·8	81
December	29·918	29·881	29·662	29·702	29·791	·171	·072	·113	92	87·3	72		82·8	81
Means	30·002	29·956	29·750	29·798	29·878	·152	·058	·098	87·4	84·5	74·2		80·3	80·5
Means for the Season, from December 1864 to March 1865 (inclusive)	29·931	29·894	29·682	29·735	29·818	·154	·064	·114	93·5	88·3	75·7		83·3	86·7
Means for the Cool Season, from June to September (inclusive)	30·055	30·008	29·970	29·839	29·923	·138	·092	·091	82·	79·8	70·5		76·9	76·5
Means for the Intermediate Season, April and May, October and November	30·020	29·964	29·776	29·822	29·894	·161	·038	·102	87·5	85·4	77·7		81·2	79·7

* The Barometric Observations for 1864 were taken from an Aneroid Barometer supplied by the Board of Trade, and those for the remainder of the period from a standard mercurial

† This instrument consisted of two thermometers, dry and wet bulbs, on Mason's principle. They, as well as the self-registering thermometers, were fixed

‡ Between Dry

TABLE, No. 2, for 1865.

(Mason's.) Bulb.			Diurnal Range.‡			Elastic Force of Aqueous Vapours. At Temperature of the Dew Point.					Humidity of Atmosphere. Complete Saturation, being estimated at 1·000.					Diurnal Range.		
Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.
74	74·6	78·7	13	0	4·1	1·218	1·151	·812	·826	·917	1·000	·966	·595	·654	·825	·490	·002	·201
74	74·6	79·	9	0	3·3	1·057	1·050	·801	·827	·906	1·000	1·000	·624	·698	·848	·317	·000	·171
75	76·	79·	10	0	4·6	1·282	1·120	·739	·776	·910	1·000	·965	·592	·650	·792	·339	·084	·185
72	74·3	76·8	12	3	5·8	·927	·919	·679	·718	·825	·871	·806	·569	·668	·728	·221	·079	·140
73	73·6	75·6	8	0	4·4	·927	·919	·723	·736	·827	·902	·885	·655	·692	·785	·288	·044	·125
57	61·3	73·3	13	0	4·	1·000	·983	·496	·515	·765	1·000	·982	·617	·649	·806	·321	·006	·129
67	69·	73·1	9	0	3·2	1·000	·909	·619	·624	·771	1·000	·948	·650	·680	·839	·384	·041	·144
70	70·3	72·3	7	1	4·	·862	·846	·619	·641	·727	·945	·912	·667	·707	·795	·276	·048	·127
64	67·3	71·9	17	0	5·1	·867	·858	·453	·492	·701	·945	·912	·401	·463	·744	·557	·058	·174
70	70·3	74·5	12	1	5·	·873	·873	·560	·598	·774	·900	·869	·496	·568	·758	·331	·010	·141
73	74·3	76·8	11	1	5·1	·939	·905	·617	·720	·837	·948	·900	·583	·647	·768	·353	·024	175
72	73·	77·	10	0	4·3	·964	·937	·703	·708	·830	1·000	·957	·557	·614	·748	·365	·118	·220
70	70·7	75·6	10·9	0·6	4·4	·993	·955	·653	·681	·815	·959	·924	·582	·640	·786	·346	·042	·161
74·2	76·5	79·6	10·5	0·2	4·2	1·185	1·107	·790	·809	·911	1·000	·977	·603	·667	·821	·552	·028	·185
64·5	66·9	72·6	11·5	0·2	4·1	·932	·899	·546	·568	·741	·980	·938	·583	·624	·796	·384	·038	·143
72·	73·1	75·9	10·7	1·2	5·0	·916	·904	·644	·693	·815	·905	·865	·575	·648	·759	·298	·039	·145

instrument supplied by the Queensland Government. The cistern of this barometer was supplied with an ivory point, which fixed the zero of the scale. It read off to the 1/1000th part of an inch.
on a stand, which excluded direct solar and radiated heat, at the same time that the instruments on it were exposed to the full influence of the atmosphere.
and Moist Bulbs.

TABLE, No. 2—*continued.*

MONTHS.	Self-Registering Thermometers.*												Rain Gauge.†				
	In the Shade.					Diurnal Range.			In the Sun.		On the Ground.			Total Rain Fall.	In One Day.			Days of Rain.
	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Mean Maximum.	Maximum.	Minimum.	Mean.		Maximum.	Minimum.	Mean.	
														Inches.	*Inches.*	*Inches.*	*Inches.*	
January	99	89·	73	75·6	82·4	23	3	13·3	122	116·9	–	–	–	17·36	5·20	·01	·86	20
February	94	89·3	72	74·3	82·2	20	6	15·	132	123·9	–	–	–	14·74	2·00	·03	·70	21
March	95	90·	73	76·5	83·2	21	7	13·4	130	109·6	–	–	–	8·47	3·10	·01	·56	15
April	92	89·2	73	77·	83·4	19	8	12·	112	101·4	–	–	–	·03	·02	·01	·015	3
May	93	85·	72	75·	80·3	20	6	10·	110	98·	–	–	–	·97	·50	·01	·06	15
June	84	80·9	61	72·8	76·8	20	5	8·	108	96·	–	–	–	1·61	·22	·01	·07	23
July	83	80·6	65	71·3	77·	16	5	9·	118	104·	–	–	–	1·06	·30	·01	·06	16
August	83	80·3	70	72·2	76·6	13	5	8·	106	98·	–	–	–	·42	·06	·01	·013	15
September	87	81·6	64	71·7	77·1	23	6	9·8	120	103·6	–	–	–	·15	·06	·02	·03	4
October	89	83·6	68	74·8	79·4	21	3	8·8	115	101·	78	70	75·	·19	·09	·01	·03	5
November	94	86·4	75	77·6	81·8	18	5	8·8	118	105·7	79	72	76·7	·73	·32	·02	·08	9
December	93	88·1	72	77·2	82·7	19	5	10·9	120	110·	81	72	75·	7·83	1·80	·01	·61	12
Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	53·06	–	–	–	157
Means	90·5	85·3	69	74·6	80·2	19·5	5·3	10·5	117·3	105·6	79·3	71·3	75·5	–	1·14	·013	·257	–
Hot Season Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	48·02	–	–	–	68
Hot Season Means	96·2	89·3	73·2	76·3	82·8	21·5	5·2	13·4	126·5	115·	–	–	–	–	3·43	·016	·704	–
Cool Season Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	3·24	–	–	–	57
Cool Season Means	84·7	80·2	65	72·	76·8	18·	5·2	8·7	113·	100·4	–	–	–	–	·16	·012	·043	–
Intermediate Season Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	1·92	–	–	–	32
Intermediate Season Means	92	86·	72	76·1	81·2	19·5	5·5	9·9	113·	101·5	78·5	71·	75·8	–	·31	·016	·061	–

* These instruments, made by Negretti & Zambra, of London, were supplied to me with the Kew corrections, which were always applied when the different temperatures for the preceding 24 hours were read off at 9 a.m. daily. The minimum

† The rain gauge consisted of two portions, viz., a cylindrical vessel, fitted with a cylindrical cover on receiver, the receiving portion sloping inwards like an inverted cone, and terminating in a small aperture through which the rain from the sloping

evaporation can take place, even in the hottest weather.

TABLE, No. 2—*continued.*

Direction and Force of Wind.								Portion of Sky obscured by Clouds.			Ozone, 0 to 10.							
Direction.					Pressure in Lbs. per Square Foot.			Scale, 0 to 10.			By Day.				In the 24 Hours.			
South-Easterly.	South-Westerly.	North-Westerly.	North-Easterly.	Variable.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.	Total.	Maximum.	Minimum.	Mean.	Total.	Maximum.	Minimum.	Mean.
Days.	*Days.*	*Days.*	*Days.*	*Days.*														
7	4	10	3	7	1·00	·005	·111	10	0	6·1	17	2	0	1·2	44	4	1	1·5
9	1	9	–	9	1·2	·005	·135	10	0	7·	39	3	0	1·6	82	6	1	2·9
21	–	8	–	2	2·0	·005	·704	10	1	6·	52	4	0	2·2	119	10	1	3·8
30	–	–	–	–	2·5	·4	1·243	10	0	4·3	68	4	0	2·4	134	8	1	4·4
31	–	–	–	–	2·9	·1	·733	10	1	5·6	141	7	1	4·	254	10	3	8·
28	1	–	–	1	3·1	·1	·833	10	0	5·9	107	7	1	3·5	215	10	3	7·1
29	2	–	–	–	2·6	·005	·666	10	0	6·1	130	6	2	4·3	235	10	4	7·5
31	–	–	–	–	2·4	·4	1·097	10	1	6·5	155	7	2	5·	269	10	5	8·6
27	2	–	1	–	2·4	·045	·760	10	0	4·3	120	7	1	4·	223	10	2	7·4
30	–	1	–	–	2·9	·005	1·080	10	0	5·1	123	6	2	3·9	234	10	4	7·5
26	–	3	1	–	2·2	·005	·765	10	0	5·8	113	7	2	3·7	213	10	4	7·1
17	7	6	–	1	1·4	·005	·414	10	0	6·2	77	5	1	2·4	153	9	2	4·9
286	17	37	5	20	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	2·216	·090	·711	10	0·02	5·7	95·1	5·4	1·0	3·1	181·2	8·9	2·5	5·8
57	5	38	3	18	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	1·4	·005	·316	10	0·2	6·3	35·3	3·	·0	1·6	81·6	6·6	1·	2·7
114	5	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	2·62	·122	·889	10	0·3	7·6	128·	6·7	1·5	4·2	235·	10·	3·5	7·6
117	–	4	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	2·62	·127	·955	10	0·3	5·2	111·	6·	1·	3·5	208·	9·5	3·	6·7

grass thermometer first sent me was broken on the passage from Brisbane, and I had to wait eight months before I could get another.
sides drops into the larger vessel, and a cylindrical glass measure, graduated to the 1-100th of an inch, which measures off the water collected in the other vessel. The cover is so fitted, and the aperture in it so small, that very little, if any,

TABLE, No. 3, for 1866.

MONTHS.	Barometer.								Hygrometer.*						
	Corrected for Temperature and Mean Sea Level.					Diurnal Range.*			Dry Bulb.					Moist	
	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Mean Maximum.
January	29·953	29·900	29·610	29·681	29·772	·161	·082	·114	90	85·6	75	75·6	80·3	80	79·6
February	29·910	29·877	29·675	29·753	29·799	·174	·053	·115	86	84·	75	75·6	80·1	80	79·3
March	29·988	29·950	29·646	29·679	29·860	·204	·094	·109	87	85·	74	74·	80·5	79	78·6
April	29·988	29·950	29·728	29·788	29·858	·136	·073	·107	87	84·3	73	73·6	80·1	79	78·
May	29·986	29·951	29·748	29·813	29·885	·132	·083	·100	83	81·3	77	77·	79·6	78	77·3
June	30·138	30·104	29·790	29·848	29·996	·202	·075	·115	82	79·6	71	74·3	77·7	77	76·
July	30·130	30·025	29·815	29·870	29·930	·135	·060	·096	80	78·3	73	74·6	76·5	76	75·3
August	30·084	30·028	29·789	29·835	29·931	·147	·036	·098	80	78·6	73	74·	76·3	77	76·6
September	30·022	29·988	29·781	29·846	29·933	·158	·031	·105	81	79·6	74	75·6	77·5	76	76·
October	30·004	29·970	29·783	29·836	29·897	·141	·033	·096	89	84·6	77	78·3	80·5	83	80·
November	29·998	29·961	29·754	29·807	29·874	·124	·069	·097	85	83·3	77	77·6	80·8	82	81·
December	29·979	29·867	29·662	29·718	29·739	·150	·070	·112	89	86·	74	74·3	81·5	82	81·3
Means	30·015	29·964	29·731	29·787	29·874	·155	·059	·105	84·9	82·3	74·4	75·3	79·2	79	78·2
Means for the Hot Season, from December 1865 to March 1866 (inclusive)	29·942	29·902	29·648	29·698	29·805	·177	·065	·112	88·7	85·4	74·	75·	80·9	80·	79·4
Means for the Cool Season, from June to September (inclusive)	30·093	30·036	29·793	29·849	29·952	·160	·050	·103	80·7	79	72·7	74·6	77	76·5	75·9
Means for the Intermediate Season, April and May, October and November	29·994	29·938	29·753	29·811	29·878	·133	·064	·100	86	83·3	76·	76·6	80·2	80·5	79·

* Between dry and moist bulbs.

TABLE, No. 3, for 1866.

(Mason's).						Elastic Force of Aqueous Vapour.					Humidity of Atmosphere.							
Bulb.			Diurnal Range.			At Temperature of the Dew Point.					Complete Saturation being Estimated at 1,000.					Diurnal Range.		
Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.
74	75·3	77·3	10	0	2·	·983	·967	·810	·827	·875	1·000	1·000	·595	·689	·877	·309	·032	·147
74	74·6	77·3	8	0	2·2	·964	·948	·764	·784	·883	1·000	·984	·659	·709	·865	·342	·052	·202
74	74·	76·9	10	0	4·	·950	·938	·740	·765	·865	1·000	1·000	·622	·662	·829	·342	·000	·192
70	71·3	75·8	9	0	4·7	·950	·928	·665	·691	·820	1·000	·963	·592	·651	·797	·408	·074	·150
73	73·	75·	8	1	4·3	·921	·899	·683	·703	·796	·910	·901	·657	·689	·785	·249	·065	·118
67	68·3	72·6	11	0	4·9	·973	·855	·525	·580	·722	·945	·878	·548	·610	·758	·418	·063	·161
63	66·6	72·7	9	0	3·7	·862	·842	·483	·551	·742	·946	·930	·669	·684	·811	·341	·040	·128
69	69·	72·6	9	0	3·6	·927	·903	·602	·548	·739	1·000	·982	·666	·679	·811	·292	·083	·142
68	68·3	73·	10	1	4·2	·857	·851	·550	·559	·735	·944	·911	·563	·606	·778	·204	·048	·133
71	71·6	75·4	10	0	4·7	·998	·931	·613	·648	·790	·895	·834	·599	·648	·759	·280	·042	·161
73	73·6	78·	7	0	3·	1·057	1·030	·732	·734	·912	1·000	1·000	·680	·730	·865	·242	·052	·125
72	73·3	77·9	10	0	3·7	1·010	1·007	·748	·783	·892	1·000	1·000	·650	·707	·831	·358	·100	·207
70·6	71·5	75·3	9·2	0·1	3·7	·946	·924	·659	·681	·814	·970	·948	·622	·672	·813	·315	·054	·155
73·5	74·2	77·1	9·5	0·	3·1	·965	·946	·755	·773	·863	1·000	·985	·598	·668	·829	·339	·050	·192
66·7	68	72·7	9·7	0·	4·1	·904	·862	·540	·559	·734	·958	·925	·609	·644	·789	·313	·058	·141
81·7	72·3	76·	8·5	0·	4·1	·981	·947	·674	·694	·829	·951	·924	·632	·679	·891	·294	·058	·138

TABLE, No. 3—*continued*.

MONTHS.	Self-Registering Thermometers.													Rain Gauge.				
	In the Shade.					Diurnal Range.			In the Sun.		On the Ground.			Total Rainfall.	In one Day.			Days of Rain.
	Mean.	Mean Maximum.	Maximum.	Mean Minimum.	Minimum.	Mean.	Minimum.	Mean.	Maximum.	Mean Maximum.	Maximum.	Minimum.	Mean.		Maximum.	Minimum.	Mean.	
January	91	84·9	74	75·6	80·2	14	4	9·2	118	107·1	77	73	75·	29·59	4·05	·03	1·02	29
February	90	84·9	73	74·8	79·8	16	5	10·	115	105·7	76	73	75·1	22·79	4·94	·01	·91	25
March	90	84·4	73	75·3	79·8	15	4	9·1	116	100·	77	73	75·	25·20	7·30	·03	1·20	21
April	92	84·1	71	75·7	79·9	20	5	8·3	115	96·3	79	70	75·3	3·35	·91	·01	·20	14
May	85	82·6	71	75·8	79·2	12	3	6·9	95	89·1	76	71	73·7	·49	·23	·02	·09	6
June	83	80·7	66	73·	76·8	17	4	7·7	105	92·4	76	64	70·	·22	·05	·02	·03	7
July	81	79·2	68	73·2	76·2	12	3	5·9	92	88·3	74	69	71·5	·94	·20	·01	·07	13
August	81	79·3	67	73·	76·7	13	5	6·2	92	89·1	74	66	71·1	·23	·05	·01	·02	9
September	83	80·4	72	74·1	77·2	9	5	6·2	100	92·4	77	71	73·3	·18	·11	·01	·06	3
October	89	83·	72	75·8	79·4	14	5	7·9	123	102·	77	74	75·8	·05	·02	·01	·016	3
November	86	83·4	74	76·7	80·	11	4	6·7	112	103·8	81	73	76·6	2·31	·50	·01	·19	12
December	90	86·	69	75·2	80·6	14	7	10·7	124	110·8	80	69	76·2	18·00	9·00	·01	1·00	18
Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	103·35	–	–	–	160
Means	86·7	82·7	70·8	74·8	78·7	13·9	4·5	7·9	109·7	98·2	77·	70·5	74·	–	2·28	·015	·402	–
Hot Season — Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	84·91	–	–	–	87
Hot Season — Means	91·	85·5	73·	75·7	80·6	16·	4·5	9·8	117·2	105·5	77·7	72·7	75·	–	4·52	·02	·933	–
Cool Season — Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	1·57	–	–	–	32
Cool Season — Means	82·	79·9	68·2	75·3	76·7	12·7	4·2	6·5	97·2	90·6	75·7	67·5	71·4	–	·102	·012	·046	–
Intermediate Season — Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	6·20	–	–	–	35
Intermediate Season — Means	88·	83·2	72·	76·	79·6	11·2	4·2	7·1	112·3	97·8	78·2	72·	75·3	–	·415	·01	·126	–

* The anemometer used was a small cup and dial, one made by Adie of London, on Dr. Robinson's principle. It was constructed with five dials, from which the readings were taken like those of a gas-meter. The thousands; those on the third, thousands; those on the fourth, hundreds; or those on the fifth, or right hand one, so many tens. 200 revolutions of the cups are produced by one mile of wind. The velocity being known,

TABLE, No. 3—*continued.*

Directions and Force of Wind.*								Portion of Sky obscured by Clouds.			Ozone - - 0 to 10.							
Directions.					Pressure in Lbs. per Square Foot.			Scale, 0 to 10.			By Day.				In the 24 Hours.			
South Easterly.	South Easterly.	North Westerly.	North Easterly.	Variable.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.	Total.	Maximum.	Minimum.	Mean.	Total.	Maximum.	Minimum.	Mean.
1	6	23	1	–	1·0	·005	·233	10	1	8·	90	5	0	3.	200	10	2	6·4
10	–	11	4	3	·5	·005	·131	10	0	8·	34	2	0	1·2	85	7	1	3·
21	–	3	5	2	1·8	·005	·514	10	0	7·	60	4	0	2·	137	9	2	4·5
28	1	–	–	1	2·4	·020	·824	10	0	7·	69	4	1	2·3	160	10	2	5·3
31	–	–	–	–	1·8	·1	·822	10	0	5·4	60	4	1	1·9	163	8	1	5·2
29	1	–	–	–	1·6	·005	·730	10	1	5·7	50	3	1	1·6	150	7	2	5·
30	1	–	–	–	1·2	·1	·717	10	0	6·8	83	8	1	2·6	188	10	3	6·
31	–	–	–	–	2·2	·1	·826	10	1	6·2	91	8	1	2·9	191	10	3	6·1
30	–	–	–	–	1·4	·1	·769	10	0	5·1	109	6	0	3·6	215	10	5	7·1
30	–	1	–	–	2·4	·005	·759	10	0	5·	102	5	1	3·2	207	10	3	6·6
29	–	1	–	–	2·2	·005	·786	10	0	6·6	75	6	1	2·5	167	10	3	5·5
8	2	12	5	4	1·2	·005	·154	10	0	7·4	56	4	0	1·8	126	9	2	4·
278	11	51	15	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	1·64	·037	605	10	0·2	6 3	73·2	4·9	0·5	2·3	165	9·1	2·4	5·3
49	15	43	10	6	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	1·17	·005	·323	10	0·2	7·3	65·2	4·	9·2	2·1	143	8 7	1·7	4·7
120	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	1·6	·076	·760	10	0·2	5·4	111.	6·2	0·7	2·6	186	9·2	3·2	6·
118	1	2	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	2·2	·032	·797	10	0·2	6·	76·5	4·7	1·	2·4	174	9·5	2·2	5·6

figures on the left dial—or that furthest from the endless screw on the axis of the *rod*, set in motion by the revolution of the cups—indicate so many hundreds of thousands of revolutions: those on the next, tens of the horizontal pressure is easily calculated.

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TABLE, No. 4, for 1867.

MONTHS.	Barometer.									Hygrometer.						
	Corrected for Temperature and Mean Sea Level.						Range Daily.			Dry Bulb.					Moist	
	Maximum.	Mean.	Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Minimum.	Mean Maximum.
January	29·906	29·909	29·617	29·677	29·827	·164	·054	·105	88	85·3	74	75·3	81·7	80	79·6	
February	29·913	29·875	29·664	29·727	29·796	·149	·064	·109	89	85·3	76	77·	82·1	82	80·3	
March	30·026	29·986	29·691	29·748	29·836	·197	·078	·110	87	85·	74	75·	80·6	81	80·6	
April	29·870	29·821	29·640	29·703	29·747	·181	·024	·115	88	85·6	71	73·6	80·6	82	81·	
May	29·909	29·870	29·653	29·711	29·802	·184	·045	·119	86	83·3	75	76·	80·6	80	79·6	
June	30·021	29·983	29·693	29·771	29·905	·178	·070	·114	84	81·3	73	75·3	79·	79	78·	
July	30·006	29·974	29·758	29·841	29·904	·163	·076	·105	81	79·6	74	75·3	77·8	78	77·6	
Means	29·958	29·916	29·673	29·740	29·833	·173	·058	·111	86·1	83·6	73·8	75·3	80·3	80·2	79·5	
Means for the Hot Seasons from December 1866 to March 1867 (inclusive)	29·971	29·909	29·658	29·717	29·804	·165	·066	·109	86·2	83·4	74·5	75·4	81·4	81·2	80·4	

MONTHS.	Self-Registering Thermometers.												Rain Gauge.				
	In the Shade.					Diurnal Range.			In the Sun.		On the Ground.			Total Rainfall.	In One Day.			Days of Rain.
	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Mean Maximum.	Maximum.	Minimum.	Mean.		Maximum.	Minimum.	Mean.	
January	90	85·7	71	76·2	80·9	15	4	9·4	122	113·2	79	74	75·3	10·08	3·50	·01	·48	21
February	90	87·6	72	75·9	81·7	15	5	12·	126	120·8	77	72	74·7	9·18	1·93	·02	·61	15
March	90	84·1	72	76·4	80·2	18	4	8·3	120	110·4	76	71	73·4	17·02	5·85	·01	·85	26
April	91	84·9	69	75·9	80·4	22	5	9·	112	104·9	75	64	72·3	15·33	8·85	·01	·80	19
May	88	84·2	67	76·9	80·5	20	4	7·2	112	107·	75	63	72·6	9·74	1·68	·01	·46	21
June	85	82·2	67	75·	78·6	15	4	7·2	108	96·4	73	62	70·7	·73	·15	·01	·06	11
July	82	81·1	73	75·2	78·1	8	4	5·8	94	91·1	74	70	71·8	1·25	·23	·01	·09	13
Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	63·33	–	–	–	120
Means	88	84·2	70·1	75·9	80·	16·1	4·2	8·4	113·4	105·3	75·5	68	72·9	–	3·17	·011	·479	–
For Hot Season Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	54·28	–	–	–	74
For Hot Season Means	90	85·8	71	75·9	80·8	15·3	5·	10·1	123·	113·8	78	71·5	74·9	–	5·07	·012	·735	–

TABLE, No. 4, for 1867.

Bulbs.			Diurnal Range.*			Elastic Force of Aqueous Vapour. At Temperature of the Dew Point.					Humidity of the Atmosphere. Complete Duration being Estimated at 1,000.					Diurnal Range.		
Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Maximum.	Minimum.	Mean.
74	74·6	77·6	9	0	3·8	·970	·956	·759	·776	·873	1·000	·982	·619	·661	·809	·297	·055	·193
74	75·	77·9	9	0	4·2	·958	·946	·738	·750	·886	1·000	1·000	·613	·674	·803	·382	·085	·231
74	74·3	77·5	12	0	3·7	1·003	·990	·738	·769	·886	1·000	1·000	·613	·674	·832	·372	·019	·144
67	71·6	77·3	17	0	3·	1·008	·999	·596	·622	·903	1·000	1 000	·540	·619	·864	·304	·046	·108
72	73·6	77·9	14	0	3·1	·990	·979	·610	·680	·906	1·000	1·000	·340	·612	·870	·428	·046	·159
66	68·3	75·4	11	0	3·6	·978	·955	·497	·586	·825	1·000	·970	·554	·659	·827	·263	·030	·123
73	73·	75·5	5	0	2·4	·948	·926	·722	·739	·845	1·000	·982	·753	·797	·883	·243	·044	·114
71·4	72·9	77·	11	0	3·5	·979	·964	·665	·705	·874	1·000	·990	·604	·670	·844	·355	·030	·153
73·5	74·3	77·7	10	0	3·8	·985	·974	·745	·769	·884	1·000	·995	·623	·679	·823	·352	·072	·193

Direction and Force of Wind. Direction.					Force.			Portion of Sky obscured by Clouds. Scale, 0 to 10.			Ozone, 0 to 10. By Day.				In the 24 Hours.			
South Easterly.	South Westerly.	North Westerly.	North Easterly.	Variable.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.	Total.	Maximum.	Minimum.	Mean.	Total.	Maximum.	Minimum.	Mean.
7	1	20	2	1	1·0	·005	·217	10	0	6·7	101	6	1	3·2	189	10	2	6·
4	1	10	9	4	·4	·005	·071	10	1	7·	68	5	1	2·4	146	9	3	5·2
14	1	13	0	3	1·6	·005	·263	10	1	7·	97	5	2	3·1	221	10	3	7·1
25	3	0	0	2	1·4	·005	·377	10	0	6·6	78	5	1	2·6	185	10	2	6·1
28	1	1	1	0	1·3	·020	·526	10	1	6·8	93	5	2	3·	228	10	4	7·3
27	3	0	0	0	2·2	·020	·855	10	1	5·9	125	6	1	4·1	241	10	4	8·
30	1	0	0	0	1·4	·3	·650	10	1	5·7	124	7	2	4·	254	10	6	8·1
135	11	44	12	10	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	1·328	·051	·434	10	·07	6·5	98·	5·5	1·4	3·2	209	9·3	3·4	6·8
33	5	35	16	12	–	–	–	–	–	–	–	–	–	–	–	–	–	5·8
–	–	–	–	–	1·050	·005	·201	10	·05	7·	80·5	5·	1·	2·6	170·5	9·5	2·5	–

* Between dry and moist bulbs.

Yearly Abstracts, and their Results.

Table, No. 6.

Years.	Barometer. Corrected for Temperature and Mean Sea Level. Maximum.	Barometer. Corrected for Temperature and Mean Sea Level. Mean Maximum.	Barometer. Corrected for Temperature and Mean Sea Level. Minimum.	Barometer. Corrected for Temperature and Mean Sea Level. Mean Minimum.	Barometer. Corrected for Temperature and Mean Sea Level. Mean.	Barometer. Diurnal Range. Maximum.	Barometer. Diurnal Range. Minimum.	Barometer. Diurnal Range. Mean.	Hygrometer. Dry Bulb. Maximum.	Hygrometer. Dry Bulb. Mean Maximum.	Hygrometer. Dry Bulb. Minimum.	Hygrometer. Dry Bulb. Mean Minimum.	Hygrometer. Dry Bulb. Mean.	Hygrometer. Moist. Maximum.	Hygrometer. Moist. Mean Maximum.
1864	29·995	29·950	29·778	29·816	29·883	·158	·056	·132	87·	82·2	71·8	77·	79·8	80·4	78·
1865	30·002	29·956	29·730	29·798	29·878	·152	·058	·098	87·4	84·0	74·2	75·9	80·3	80·5	79·4
1866	30·015	29·964	29·731	29·787	29·874	·155	·069	·105	84·9	82·5	74·4	75·3	79·2	79·	78·2
1867	29·958	29·916	29·673	29·740	29·833	·173	·058	·111	86·1	83·6	73·8	75·3	80·3	80·2	79·5
Means	29·992	29·946	29·733	29·785	29·867	·159	·057	·111	86·3	83·2	73·5	75·8	79·9	80·	78·7
Means for the Hot Seasons	29·959	29·895	29·660	29·713	29·805	·165	·055	·111	90·1	86·3	74·7	76·	81·8	82·6	81·1
Means for the Cool Seasons	30·056	30·007	29·789	29·843	29·953	·153	·055	·100	81·7	75·5	70·9	74·	77·	76·7	76·2
Means for the Intermediate Seasons	29·986	29·941	29·746	29·797	29·866	·153	·054	·109	86·9	84·1	75·9	77·	80·6	80·4	79·4

Years.	Self-Registering Thermometers. In the Shade. Maximum.	Self-Registering Thermometers. In the Shade. Mean Maximum.	Self-Registering Thermometers. In the Shade. Minimum.	Self-Registering Thermometers. In the Shade. Mean Minimum.	Self-Registering Thermometers. In the Shade. Mean.	Self-Registering Thermometers. Diurnal Range. Maximum.	Self-Registering Thermometers. Diurnal Range. Minimum.	Self-Registering Thermometers. Diurnal Range. Mean.	In the Sun. Maximum.	In the Sun. Mean Maximum.	On the Ground. Maximum.	On the Ground. Minimum.	On the Ground. Mean.	Rain Gauge. Total Rainfall.	Rain Gauge. In one Day. Maximum.	Rain Gauge. In one Day. Minimum.	Rain Gauge. In one Day. Mean.	Rain Gauge. Days of Rain.
														Inches.	*Inches.*	*Inches.*	*Inches.*	
1864	89·6	83·8	69·4	76·4	80·3	20·4	5·	11·4	120·4	107·	–	–	–	8·81	·48	·01	·15	47
1865	90·5	85·2	69·	74·6	80·2	19·5	5·3	10·5	117·3	105·6	79·3	71·3	75·3	53·06	1·14	·01	·25	157
1866	86·7	82·7	70·8	74·8	78·7	13·9	4·5	7·9	109·7	98·2	77·	70·5	74·	103·35	2·28	·01	·40	169
1867	88·	84·2	70·1	75·9	80·	16·1	4·2	8·4	113·4	103·3	75·5	68·	72·9	65·33	3·17	·01	·47	120
Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	228·55	–	–	–	484
Means	88·9	83·9	69·3	75·4	79·8	17·4	4·2	9·5	115·2	104·	77·2	69·9	74·1	76·18	1·76	·01	·31	161
Hot Seasons { Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	187·21	–	–	–	229
Hot Seasons { Means	92·4	86·8	72·3	75·9	81·4	17·6	4·9	11·1	122·2	111·4	76·6	70·2	73·9	62·40	4·34	·01	·78	76·3
Cool Seasons { Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	7·21	–	–	–	130
Cool Seasons { Means	83·6	80·7	66·5	73·6	77·5	15·8	4·7	8·4	107·3	97·4	74·6	66·7	71·3	2·40	·10	·01	·04	43·3
Intermediate Seasons { Sums	–	–	–	–	–	–	–	–	–	–	–	–	–	34·13	–	–	–	125
Intermediate Seasons { Means	90·9	84·8	71·5	76·3	80·4	17·9	4·6	8·8	115·7	101·4	77·3	68·8	74·5	11·37	2·90	·01	·17	41·6

Note.—In the column containing the general direction of the wind the cardinal points are distributed as follows, viz., the South-easterly contains, south; the South-westerly, west; the North-westerly, north; and the North-easterly, east. A column for calms was not required, for this reason, that although calms were of frequent occurrence during the rainy season, they were never known to continue for 24 hours; these short calms are therefore included in the column for "variables." I have likewise to observe that the observations for 1864, although they clearly and correctly indicate the temperature of the locality in which the men were encamped when they were taken, do not possess the scientific accuracy of the remainder, which were conducted under the most favourable circumstances, for the Queensland Government behaved most liberally in supplying every instrument and appliance I demanded.

Yearly Abstracts, and their Results.

Table, No. 5.

(Mason's). Bulb. Maximum.	Mean Minimum.	Mean.	Range. Maximum.	Minimum.	Mean.	Elastic Force of Vaporous Vapours. At the Temperature of the Dew Point. Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Humidity of the Atmosphere. Complete Duration being Estimated at 1,000. Maximum.	Mean Maximum.	Minimum.	Mean Minimum.	Mean.	Range. Maximum.	Minimum.	Mean.
67·8	73·	75·8	10·8	1·6	5·4	–	–	–	–	–	–	–	–	–	–	–	–	–
70·	70·7	75·6	10·9	0·6	4·4	·993	·955	·653	·681	·815	·959	·924	·582	·640	·786	·346	·042	·161
70·6	71·5	75·3	9·2	0·1	3·7	·946	·924	·659	·681	·814	·970	·948	·622	·672	·813	·315	·054	·155
71·4	72·9	77·	11·	0·	3·5	·979	·964	·685	·703	·874	1·000	·990	·694	·670	·844	·355	·050	·153
69·9	72·	75·9	10·4	0·5	4·2	·972	·947	·659	·688	·834	·976	·954	·602	·660	·814	·338	·049	·156
73·7	75·	78·1	10·	0·	3·7	1·045	1·009	·763	·783	·886	1·000	·985	·698	·671	·824	·347	·050	·190
69·3	76·7	72·7	10·4	0·4	4·1	·933	·897	·565	·596	·770	·984	·979	·615	·665	·813	·316	·046	·132
74·9	73·3	76·6	10·6	0·6	4·4	·965	·943	·640	·679	·882	·982	·929	·582	·647	·809	·352	·042	·130

Direction and Force of Wind. Direction. South Easterly.	South Westerly.	North Westerly.	North Easterly.	Variable.	Pressure in Lbs. per Square Foot. Maximum.	Minimum.	Mean.	Portion of Sky obscured by Clouds. Scale, 0 to 10. Maximum.	Minimum.	Mean.	Ozone, 0 to 10.* By Day. Total.	Maximum.	Minimum.	Mean.	In the 24 Hours. Total.	Maximum.	Minimum.	Mean.
174	5	12	2	–	–	–	–	10	·03	6·6	–	–	–	–	–	–	–	–
286	17	37	5	20	2·216	·090	·711	10	·02	5·7	95·1	5·4	1·	3·1	181·2	8·9	2·5	5·8
278	11	51	15	10	1·641	·037	·605	10	·02	6·3	75·2	4·9	0·5	2·3	165	9·1	2·4	5·3
135	11	44	12	10	1·328	·051	·434	10	·07	6·3	98	5·5	1·4	3·2	209	9·8	3·4	6·8
853	44	144	34	40	–	–	–	–	–	–	–	–	–	–	–	–	–	–
277·6	14·6	48	11·3	13·3	1·728	·059	·583	10	·03	6·2	88·7	5·2	0·9	2·8	185	9·2	2·7	5·9
139	23	136	29	36	–	–	–	–	–	–	–	–	–	–	–	–	–	–
46·3	7·6	45·3	9·6	12	1·208	·005	·279	10	·03	6·8	60·2	4·	0·4	2·1	131·7	8·2	1·7	4·4
349	14	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
116·3	4·6	–	0·3	0·3	2·00	·119	·797	10	·03	6·2	121·1	6·5	1·2	3·6	222·	9·7	3·9	7·2
344	5	9	4	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–
114·6	1·6	3	1·3	1	2·050	·057	·743	10	·03	5·9	91·	5·2	1·2	2·9	129·	9·6	2.7	6·3

* The slips of paper prepared with iodide of potassium and starch, which noted, according to Dr. Moffatt's scale, the amount of this agent in the atmosphere, were suspended in a box designed for the purpose, which, while it admitted of full circulation of air, excluded the sun's rays, rain, and dew. I also observed every precaution in not touching them with my fingers, as I discovered that doing so produced discolouration; every reliance can therefore be placed on the accuracy of the results obtained.

App. No. 4.

Appendix, No. 4.

THE

INFLUENCE OF DIET, CLIMATE, AND LONG VOYAGES,

ON THE

HEALTH AND DISEASES OF SEAMEN,

AS INDICATED BY THEIR WEIGHT:

Being the results of Experiments made in 1855-6, on the Crew of H.M.S. Salamander; with practical deductions.

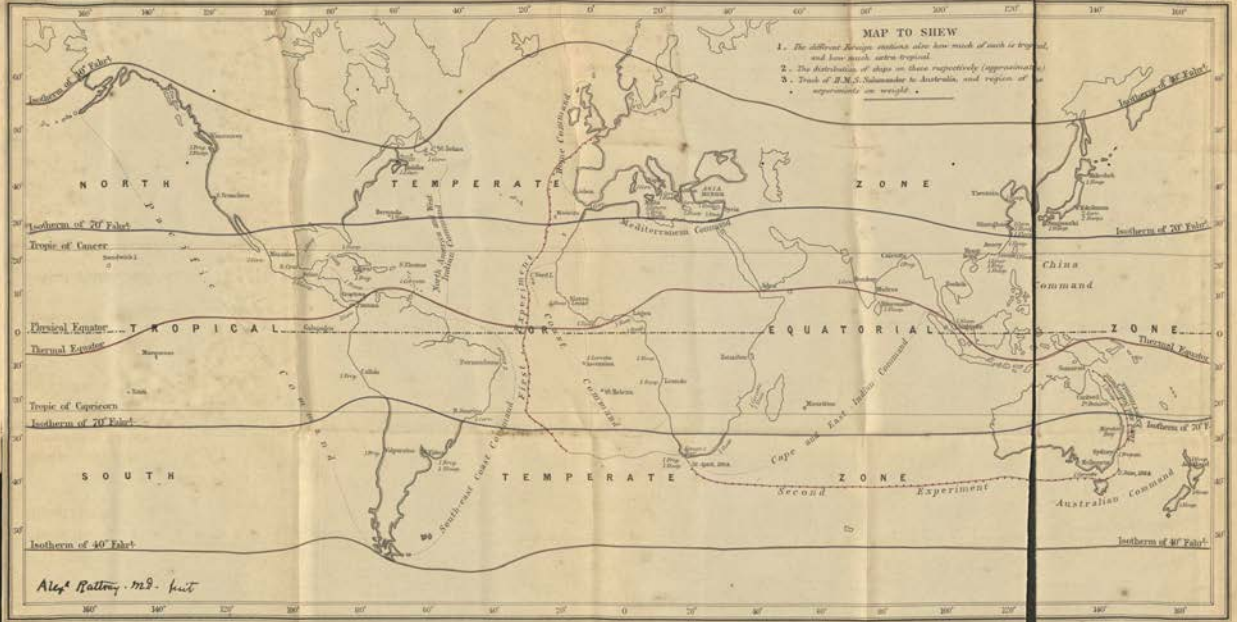
By ALEXANDER RATTRAY, M.D., Surgeon, R.N.,
late of H.M.S. Salamander.

A. The various AGENCIES which affect the HEALTH of SEAMEN.

HEBERDEN tells us that "one of the first steps towards preserving the health of our fellow creatures is to point out the sources from which diseases are apprehended:" while Wilson, a recent and more strictly nautical authority, remarks, that "high as is the present standard of health in Her Majesty's Navy, there is reason to anticipate that it may be raised still higher, and in a matter of such importance any observations which have that purpose in view will be not only inoffensive, but acceptable." To follow the first of these indications and thus further the second, is the object of the present inquiry.

The great aim of the medicine of a former age was the *cure* of disease: its *prevention* is the characteristic effort of the present day. And nowhere should prophylactic measures hold so prominent a place as on shipboard, where disease, always inconvenient, often easily induced, and too frequently severe, is combated under the least favourable circumstances, and at the greatest cost. Hence, while prudent sanitary suggestions should be the naval surgeon's highest professional aspiration, as their success is his chief honour; prompt and judicious legislation in accordance therewith is the wisest policy of the State; as it is the most important boon that can be conferred on the sailor.

The success of various, and especially dietetic, reforms made about


MAP TO SHEW
1. The different Foreign stations also how much of each is tropical, and how much extra-tropical.
2. The distribution of ships on these respectively (approximately)
3. Track of H.M.S. Salamander to Australia, and region of experiments on weight.
NORTH TEMPERATE ZONE
TROPICAL OR EQUATORIAL ZONE
SOUTH TEMPERATE ZONE
Isotherm of 40° Fahrt.
Isotherm of 70° Fahrt.
Tropic of Cancer
Physical Equator
Thermal Equator
Tropic of Capricorn
Isotherm of 70° Fahrt.
Isotherm of 40° Fahrt.
Pacific Command
North America and West Indian Command
Mediterranean Command
Cape and East Indian Command
Southeast Coast Command
Coast Command
First Experiment
Second Experiment
China Command
Australian Command
Alexr Rattray. Md. fecit

about the close of last, and beginning of the present, century, to which we are indebted for the almost total extinction of scurvy and other severe maladies, then the bane of the service; as well as later innovations which have materially improved the healthiness of our ships of war; and the necessity for keeping pace with the rapid advance in this direction, evident on shore, all incite to further improvements with a view to save much of the sickness and suffering still prevalent, and thus economise both men and money. App. No. 4.

Hasty deduction might lead us to infer that in ordinary circumstances none ought to be healthier than sailors, subjected to so many influences of a long-recognised salutary tendency. Reflection and experience, however, soon dispel this illusion, and tend to show that although there are certain peculiarities in their position and the life they lead that are eminently conducive to health and longevity; to counterbalance this there are others of an adverse kind, more or less constant and universal, which are prejudicial to the system of the seaman, and inimical to the sanitary condition of the service generally.

Among the advantageous influences, a liberal dietary, carefully enforced private and public hygiene; well-regulated physical, moral, and mental discipline, and freedom from petty cares, are exactly the indications that would be pointed out as those best adapted for establishing the health of men closely massed in limited spaces and otherwise situated as sailors are. While the principal injurious agencies which tend to undermine the constitution and militate against the salubrity of seamen, include broken and deficient nocturnal rest; exposure to sudden and great climatic and meteorological vicissitudes; the respiration of impure air during sleep; unavoidable subjection to excessive solar or stoke-hole heat; and, lastly, the present system of dieting. On individual vigour depends much the issue of the struggle between these opposing forces. In a few the trial of strength results in retained health and perhaps a lengthy life; but in the majority it sooner or later ends, it may be once and again, in disease; or if that is evaded, in debility, and ultimately the premature decay and old age so prevalent among mariners.

But there are two circumstances in which the former have the least and the latter the greatest effect, and the system of the sailor has most to contend with, viz., long voyages and tropical service. It is then, and especially when the two are combined, that health is most apt to be deteriorated and disease induced. And it is to a vitiated local or ship atmosphere, broken rest, debilitating climates, and certain dietetic influences; that the slowly deteriorating vitality, the gradually augmenting proclivity to disease, the more serious ailments, and the increasing per-centage of hospital, invaliding, and fatal cases, observable as the voyage or commission lengthens, are doubtless principally due. Nevertheless our etiological views with regard to many naval ailments, and especially tropical maladies, which undoubtedly arise from one or more of these sources, are still so vague as to lead to frequent false reasoning, and much injudicious meddling, both prophylactic and remedial, which is much to be regretted, because precise physiological and pathological data can alone furnish safe guides to aid us both in defining our treatment of disease and basing efforts for its prevention.

App. No. 4.

Moreover, when we recollect that it is to the same agencies that the brief lives and much of the sickness and mortality among seamen under all circumstances, are chiefly due, the necessity for attempting to assign to each its proper share in the production of these effects, must be still more apparent, lest we err in our efforts to counteract or cure them. The action of vitiated air and broken rest in producing the results in question, is usually so slow and insidious that it is difficult to isolate their influence; but the speedier, more potent, and tangible effects of climate and diet, aid us materially when we attempt to specialize their single or combined consequences. These consist of two classes of phenomena, the physiological and pathological, the former chiefly comprising various changes in the normal function or structure of different organs of the body, within the limits of health; and the latter of the same deviations carried into the domain of disease. And as it is their influence on the salubrity rather than on the sickness of sailors we are to endeavour to elucidate, it is with the first that we have here principally to do; although so intimate is their mutual bearing, and so indefinite the line which separates normal and abnormal life, that in noticing this we are necessarily observing both, and will find it impossible to make the study of either independent.

The more evident primary results of a sojourn in the torrid zone consist mainly in exaggerated or impaired function, which especially affect the nutritive and eliminatory systems, particularly the skin, liver, lungs, and kidneys; and are manifested by general lassitude of body and brain, a decrease in the respiratory movements, appetite and urine, and an augmented thirst, cutaneous exhalation, and flow of bile. But other important though less frequently noticed effects usually follow a passage through, or more prolonged stay in, the tropics; first among which is a decrease in the weight and strength. To what tissues or organs this is chiefly referable we may hereafter attempt to determine. But that it is a serious oversight to specially note the former obvious, and slight the latter less manifest, effects of climatic mutations, will appear when we consider that many physiological and pathological phenomena are identical in kind, and differ only in intensity, and that consequently a good knowledge of the former often furnishes the best criterion to guide us in the prevention or treatment of the latter, on the only safe, viz., a philosophical foundation.

The influence of different diet systems on the human frame are perhaps ultimately as marked, though not so speedily manifested either in their minor or major forms, as those of climate. Their potency as morbific agents has been long recognised; but, as with the latter, their less observable results have hitherto been little attended to. But here also, variation in weight, either on the side of increase or decrease, is one of the most characteristic and easily noted sequelæ. As a general rule, health and weight have so intimate a relation that no better standard of the former, and certainly no simpler index of disease, whether arising from climatic or dietetic agencies, could be had than is furnished by their effect on the latter. Indeed, so much is this the case that a decrease in the one, if considerable and continued, may usually be deemed an almost

almost infallible indication of some detriment or change in the other; and *vice versâ*, when the body maintains its usual bulk and vigour, we may fairly infer that individuals enjoy good health, and that their various organs and functions are normal. Hence this test is probably the best which could be chosen for showing the relative and combined effects both of the present naval dietary and of tropical service on the system of seamen, a subject not hitherto determined with the accuracy desirable in all medico-physiological inquiries. And as an index of graver results which often originate in the same influences, and a guide for hygienic suggestions, necessarily most valuable and likely to be followed by the greatest success when founded on fact, these cannot fail to possess more than merely professional interest and importance. App. No. 4.

B.—The influence of DIET, CLIMATE, and LONG VOYAGES on the HEALTH of SEAMEN, as indicated by their WEIGHT.

The crew experimented on numbered 238, of whom 220, or eleven-twelfths, were under thirty-five years of age; *i. e.*, below the prime of life. They were thus favourable subjects, as they were in other respects suitably situated for an inquiry of this nature. Their original weight in England formed the basis for contrast with the various changes that occurred during the voyage of five months to, and subsequent stay of three years on, the east coast of Australia.*

The following Table shows the effect of a voyage of 7,600 miles from England to the Cape of Good Hope (Map).

TABLE 1.

1st weighing - 9 January 1864, Plymouth - - - - } 55 days.
2nd „ - 4 March 1864, S. Atlantic, lat. 33° long. 21° W. }

Number of fresh-meat days	5	Number of days in the tropics	34
„ salt „	50	„ „ temperate regions	21
„ lime-juice „	11		

	Number Weighed.	Weight not changed.	Number who have Gained in Weight, and Range of Gain.	Average Gain per Man.	Number who have Lost in Weight, and Range of Loss.	Average Loss per Man.
				lbs.		lbs.
TOTALS - -	155	8	45 - 1 to 13 lbs.	$3\frac{3}{4}$	103 - 1 to 23 lbs.	$6\frac{83}{103}$

The two chief debilitating agencies against which the men had to contend during this period of fifty-five days were—the thirty-four days' tropical climate, and the fifty days' salt-meat diet.† And the result

* Only an outline of these experiments has been given here.

† Except where specially mentioned, fresh-meat days imply the issue of succulent vegetables, and salt-meat days their absence.

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result shows that of the entire crew there was a loss of flesh in 103, or two-thirds, to the average extent of 6¾ lbs. per man, the individual loss ranging from 1 to 23 lbs.; and in forty-five, or about one-third, an average increase of 3⅔ lbs., and again of 1 to 13 lbs.; the latter occurring in men of strong inherent constitution, such as would readily fatten on any diet if sufficiently abundant, and even under circumstances usually inimical to health. A sick list of two at the commencement of the experiment, and five at its close, corresponds to this. This marked result was not due to loss of appetite, and a resulting decrease in the ingesta; for the food consumed per man during the first week averaged 1 lb. 13 oz. daily, and during the last week 2 lbs. 3 oz.; *i. e.*, 6 oz. more.

The prosecution of the voyage, after a health-reviving stay of sixteen days at Simon's Bay, enabled us to continue the inquiry under different circumstances; viz., where one debilitating cause, climate, was in abeyance, while the other continued in full force.

TABLE 2.

1st weighing - 14 April 1864, near Cape of Good Hope -
2nd „ - 2 June 1864, near Sydney - } 49 days.

Number of fresh-meat days	- 1	Number of days in the tropics	- 0
„ salt „	- 48	„ „ temperate latitudes	- 49
„ lime juice „	- 39		

	Number Weighed.	Weight not changed.	Number who have Gained in Weight, and Range of Gain.	Average Gain per Man.	Number who have Lost in Weight, and Range of Loss.	Average Loss per Man.
				lbs.		*lbs.*
TOTALS -	148	13	101 - 1 to 19 lbs.	$4\frac{29}{101}$	34 - 1 to 8 lbs.	$2\frac{1}{2}$

This shows the effect of a forty-nine days' voyage to Sydney along 41° S. lat. (map), *i. e.* in a climate altogether temperate, and very like that of England; the chief depressing agent being forty-eight days' salt-meat diet. Lime juice was issued on thirty-nine days. In this instance, also, the results are very marked, though unlike the last; inasmuch as they are on the side of gain. For of the 148 men weighed, 101, or two-thirds, had increased in weight to an average of 4½ lbs.; while thirty-four, or about one-fourth, had lost flesh to a smaller average and range. All the boys who had the strong vital resilience of youth in their favour gained in weight, as did the younger men, while the seniors and debilitated lost. The increase could have no connection with an improved appetite and ingestion of food, for the average consumption at the end of the experiment was only seven drachms a man per day above what it was at the commencement, and thus too trivial to appreciably influence results. And it appeared as if the simple exit from the tropics had relieved the system from some antagonistic power, and enabled it to struggle

struggle with decided success to regain its normal standard of weight, and rebuild its wasting tissues even out of ill-adapted materials. App. No. 4.

But, while the loss of weight in one-fourth of the men proves that the present sea dietary cannot be considered inocuous, we must not, when we contrast the smaller loss, both individual and collective, in this, than in the last experiment, be led to judge hastily of tropical climate, and consider it the only deleterious influence at work on long voyages. For, singly and unconjoined with other agencies, climate may, like diet, be comparatively mild in its results for such limited periods; and, possibly, it is only when climate and salt-meat diet are conjoined, that they prove so potent.

TABLE 3.

1st weighing, Plymouth - 9 January 1864 - - } 230 days.
2nd „ Cape York - 10 August 1864 - - }

Number of fresh-meat days	74	Number of days in the tropics	50
„ salt „	156	„ temperate latitudes	180
„ lime juice „	73		

	Number Weighed.	Weight not changed.	Number who have Gained in Weight, and Range of Gain.	Average Gain per Man.	Number who have Lost in Weight, and Range of Loss.	Average Loss per Man.
				lbs.		*lbs.*
TOTALS - -	119	9	34 - 1 to 19 lbs.	$5\frac{1}{2}$	76 - 1 to 23 lbs.	$6\frac{3}{16}$

Table 3rd shows the result of the whole voyage of 230 days from England to North-eastern Australia, where the tropics were entered for the second time. It will be seen that the majority lost flesh; and, doubtless, the same thing happens in all lengthy passages. So that a law might be laid down, the longer the period the more evident the effect on weight. The system cannot bear an unlimited strain; weight is first affected, and disease ultimately ensues; the sick-list increasing with the decreasing weight and vitality.

The following experiments were made while on the Australian station, and employed chiefly in making triennial trips from Sydney, situated in the temperate zone (latitude 34° S.) to Somerset, near Cape York, and well in the tropics (latitude $10\frac{1}{2}$° S.); a distance of 1,700 miles in a nearly north and south direction, along the north-east coast.

TABLE 4.

1st weighing - 2 June 1864, Sydney - - - - }
2nd. „ - 14 September 1864, Denison, after a trip to Cape York - - - - - - } 104 days.

Number of fresh-meat days	53	Number of days in the tropics	62
„ salt „	51	„ temperate latitudes	42
„ lime juice „	90		

	Number Weighed.	Weight not changed.	Number who have Gained in Weight, and Range of Gain.	Average Gain per Man.	Number who have Lost in Weight, and Range of Loss.	Average Loss per Man.
				lbs.		*lbs.*
TOTALS - -	120	6	6 - 2 to 8 lbs.	$3\frac{3}{5}$	108 - 1 to 24 lbs.	$6\frac{4}{5}$

Table 4th shows the effect of 104 days under three depressing agencies; viz., sixty-two days' tropical weather, fifty-one days' salt meat, and five weeks' severe subsolar work at Somerset. In this instance nine-tenths of the crew lost flesh largely, a result which could not arise from a diminished appetite or a reduced supply of food, for the average consumption at the close of the experiment, when thus losing flesh daily, had increased by $3\frac{1}{4}$ oz. per man. Contrasted with the figures in Table 1st., in which only two of these adverse agencies operated; this shows how materially the third influenced the results; for then only two-thirds lost weight, but in this case nine-tenths of the crew. A diet which is nearly one-half fresh, is thus not alone sufficient to counteract the effect of prolonged tropical exposure, and renders us still more inclined to believe that the great loss of weight in such circumstances is due, neither entirely to tropical weather, nor to salt meat alone, but to their combined influence; conjoined, perhaps, with other agencies of lesser note. A subsequent experiment in which one debilitating agent, viz., climate, was nearly the only one at work, will decide whether or not it is so.

TABLE 5.

1st weighing - 10 February 1867, off Cape Capricorn - } 61 days.
2nd „ - 12 April 1867, Port Denison - - }

Number of fresh-meat days -	25	Number of days on vegetables and soft bread - - -	18
„ salt „ -	36	Number of days in the tropics -	61
„ lime juice „ -	56	„ temperate latitudes	0

	Number Weighed.	Weight not changed.	Number who have Gained in Weight, and Range of Gain.	Average Gain per Man.	Number who have Lost in Weight, and Range of Loss.	Average Loss per Man.
				lbs.		*lbs.*
TOTALS - -	86	4	34 - 1 to 14 lbs.	$3\frac{29}{31}$	48 - 1 to 13 lbs.	$4\frac{1}{31}$

Table 5th shows the effect of a trip to Cape York and back, lasting sixty-one days, all spent in the tropics; twenty-five being fresh meat, fifty-six lime juice, and eighteen fresh vegetable and soft bread days. Thus, more than one-half lost weight considerably, while a fewer number gained, and to a less extent. The beneficial influence of the fresh meat, succulent vegetables, and loaf-bread, is clearly shown in the case of the officers, of whom only four out of fourteen lost weight, the majority gaining flesh. So far as it goes, this proves that tropical climate of itself has a material influence in diminishing weight and impairing health. But to make the inquiry completely satisfactory, with a view to ascertain the uninfluenced effect of tropical climate, it would be necessary to keep the men on fresh meat and vegetables during the entire

entire period, a combination of circumstances not easily met with on shipboard. App. No. 4.

It now remains to show the effect on weight and health when all removable injurious agencies are withheld, and a ship's company is placed in every respect in circumstances conducive to health.

TABLE 6.

1st weighing, Sydney, 23 June 1865 - - - -
2nd „ „ 30 August 1865 - - - - } 68 days.

Number of fresh-meat days -	56	Number of days in the tropics -	0
„ salt „ -	12	„ temperate latitudes }	68
„ lime juice „ -	0		

	Number Weighed.	Weight not changed.	Number who have Gained in Weight, and Range of Gain.	Average Gain per Man.	Number who have Lost in Weight, and Range of Loss.	Average Loss per Man.
				lbs.		*lbs.*
TOTALS - -	87	7	66 - 1 to 13 lbs.	$4\frac{17}{33}$	14 - 1 to 6 lbs.	$2\frac{6}{7}$

Table 6th illustrates the influence of a sixty-eight days' stay in Sydney Harbour; *i. e.*, in a healthy temperate climate, and on a fresh meat and vegetable diet. No fewer than three-fourths gained flesh considerably, while about one-sixth lost slightly, which shows the beneficial effect on health of such a stay, and its agency not only in recruiting strength after tropical service, but enabling them to withstand the debilitating results of future trips to the tropics; and the figures may be instructively compared with those in the following Table, which points out how a twenty-eight days' stay at Somerset, *i. e.*, in a tropical climate, and on a diet chiefly salt (twenty-four days), affected the weight of the crew.

TABLE 7.

1st weighing, Somerset, 9 October 1865 }
2nd „ - „ 6 November 1865 } 28 days.

Number of fresh-meat days -	4	Number of days in the tropics	28
„ salt „ „ -	24	„ temperate latitudes }	0
„ lime juice „ -	28		

	Number Weighed.	Weight not changed.	Number who have Gained in Weight, and Range of Gain.	Average Gain per Man.	Number who have Lost in Weight, and Range of Loss.	Average Loss per Man.
				lbs.		*lbs.*
TOTALS - -	92	8	8 - 1 to 10 lbs.	$3\frac{3}{4}$	76 - 1 to 12 lbs.	$4\frac{3}{19}$

Here, although the quantity of provisions taken up did not vary, the great majority lost weight materially; and it necessarily follows that a longer stay in either place, Sydney or Somerset, would have been succeeded by more apparent results. Thus, these trips of two or three months each to the tropics, invariably reduced the weight and weakend the crew generally, while the intervening sojourn in the temperate climate further south, had an opposite and beneficial effect. The injurious influence of a prolonged stay in a warm region, if it needed any further corroboration, is shown by the case of

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of the marines stationed at Somerset, eleven of whom, taken at random, were found to have lost weight in every case, and to the high average of $11\frac{9}{11}$ lbs. each man.

As elsewhere, so in the tropics, the hot-rainy and dry-cool seasons may be regarded merely as modifications of climate, and the former looked at as tropical weather exaggerated, if we may so speak. The following Table contrasts the results of two voyages from Sydney to Somerset and back during these two different parts of the year, and shows how much more injurious is a wet than a dry equatorial atmosphere:—

TABLE 8.

To show the Effect of Season on Weight in the Tropics.

		Number weighed.	Weight not changed.	Number who have gained in Weight, and range of Gain.	Average Gain per Man.	Number who have Lost in Weight, and range of Loss.	Average Loss per Man.
					lbs.		*lbs.*
Rainy Season; Monsoon.	N. W.	111	14	12 - 1 to 8 lbs.	3	85 - 1 to 20 lbs.	$7\frac{9}{35}$
Dry Season; Monsoon.	S. E.	95	7	46 - 1 to 12 lbs.	$4\frac{8}{23}$	42 - 1 to 12 lbs.	$3\frac{8}{21}$

Thus, although the tropical weather and salt-meat diet caused a marked waste of tissue in both instances, a much larger proportion lost flesh, and that to a greater extent, in the wet season than in the dry, in which the numbers who lost and gained were nearly equal.

Having thus shown, first, that salt meat alone has a certain influence in diminishing weight and deteriorating health (Table 2); second, that tropical climate has a greater effect in reducing the strength and bulk of the body (Table 5); and third, that these results are materially augmented by combination (Tables 1, 3, and 4); the following contrast (Table 9) will indicate the relative effect of these various agencies:

TABLE 9.

To show the relative and combined Effect of Salt Meat and Climate on Weight.

Reference.		Number weighed.	Per-Centage in which no change.	Per-Centage who have gained, and range of Gain.	Average Gain per Man.	Per-Centage who have lost, and range of Loss.	Average Loss per Man.
					lbs.		*lbs.*
Table 2	Salt Meat diet	148	8·78	68·24 - 1 to 19 lbs.	4·28	23·0 - 1 to 8 lbs.	2·5
„ 5	Tropical Climate.	86	4·18	39·53 - 1 to 14 lbs.	3·85	55·81 - 1 to 13 lbs.	4·04
„ 1	Salt Meat and Tropical Climate combined.	155	5·16	29·03 - 1 to 13 lbs.	3·6	66·45 - 1 to 23 lbs.	6·80

Thus,

Thus, when salt meat alone acted, the number who gained (68 per cent.), was considerably higher than under tropical climate (39 per cent.), and still more above what happened when they were combined (29 per cent.), while both the range and average gain decreased in a corresponding ratio. On the other hand, the per-centage of those who lost weight, as well as the range and average decrease, were all in a minimum on salt meat diet alone; greater under tropical climate, and greatest of all with both combined. These facts prove that the advantage is on the side of salt meat diet, than which tropical climate is a more injurious agent, and that their malific results, if we take weight as an index, are very greatly augmented when both exert their force at one and the same time, the one probably serving to intensify the other. Salt meat may thus be regarded as the minor, and warm weather the major debilitating influence during long voyages and tropical service. App. No. 4.

Again, the following Table will show clearly the relative influence of subjection to these various health-undermining agencies in diminishing weight:—

TABLE 10.

To Contrast the Effect of Various Influences on Weight.

Reference.	GAIN OR LOSS IN WEIGHT.	Per-Centage who Gained.	Average Gain per Man.
	Gain.		*lbs.*
Table 6 -	Under no injurious influences - - - - - -	75·8	4·5
„ 2 -	„ one „ (salt meat diet) - -	68·2	4·2
„ 5 -	„ one „ (tropical climate) - -	39·5	3·8
„ 1 -	„ two „ (salt meat and tropical climate - - -)	29·0	3·6
„ 4 - -	„ three „ (salt meat, tropical climate, hard work -)	5·0	3·6
	Loss.		
Table 6 -	Under no injurious influences - - - - - -	16·0	2·8
„ 2 -	„ one „ (salt meat diet) - -	22·9	2·5
„ 5 -	„ one „ (tropical climate) - -	55·8	4·0
„ 1 -	„ two „ (salt meat and tropical climate) - - -)	66·4	6·8
„ 4 -	„ three „ (salt meat, tropical climate, hard work) -)	90·0	6·7

Thus, comparatively few increased in weight under three adverse influences (5 per cent.); when only two, viz. salt meat and tropical climate, acted, the number who gained was considerably greater (29 per cent.); while it was still larger under tropical climate alone (39 per cent.); still more so under salt meat (68 per cent.); and highest of all, when these were removed and the circumstances wholly salutary (75 per cent.); and the average

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gain in each case indicates a correspondingly increasing ratio. On the other hand, the lower Table shows that both the number and average loss decreased in an exactly inverse ratio; being highest under three (90 per cent.); materially smaller under two (66 per cent.); slighter still under tropical climate alone (55 per cent.); less still under salt meat diet (22 per cent.); and least of all under a combination of genial agencies (16 per cent.).

We shall hereafter see that the two most important of these act in producing this decrease in weight on and through the blood. What tissues are affected it would be difficult to determine; but heat probably first causes a diminution of the fatty, and then of the muscular element; while the influence of food is perhaps not very dissimilar. But these sequelæ nevertheless differ in this respect, that the primary result of tropical exposure is chiefly physical, and manifested by an alteration in the quantity of the solids and fluids; while that of diet is not only the former, but also chemical and qualitative; and, while influencing their bulk, likewise, and perhaps principally, affects their composition.

C.—The Effect of Diet, Climate, and Long Voyages on the Diseases of Seamen.

These changes on the weight of seamen enable us in some measure to judge of the influence of the same agencies on their diseases; indeed, the results in question may be regarded not more as a sign of failing health than as an index of incipient illness; and the concurrent appearance and advance of loss of flesh and actual sickness under circumstances which are identical, viz., during long voyages and tropical service, seem to indicate that cause and effect have in both instances an intimate connection. We have only to prolong the period of exposure to either agency, or both combined, to cause the physiological decrease in weight to merge into more serious pathological phenomena; and we shall presently see how great is the coincidence in both with regard to the circumstances attending their development. Diet and climate have for long been, and doubtless still are, two of the principal morbific agents against which the system of the sailor has to contend. However, we cannot now so easily define and isolate their effect in the production of disease as in former times, when graver excitants induced more serious sequelæ; but we may readily infer their existence from the above enumerated less marked, but still sufficiently obvious results on the physique.

Previous to the reforms suggested by Blane, diet was a notable source of sickness and mortality in Her Majesty's Navy. But though the diseases which resulted therefrom, of which scurvy was the chief, have materially decreased since their introduction, it must be admitted that they are not quite eradicated from the service, and that the improvements in question, though the best that could be devised for that day, were not thoroughly complete and satisfactory. The latest Statistical Report (1865) shows that fifteen cases of scurvy occurred during that year, while the returns for the past ten give an average of twenty-nine per annum. Doubtless we seldom if ever meet

meet with the disease in the intense and unmodified form at one time prevalent, but usually in a milder shape. Nevertheless it is there, and appears inclined to linger; while in the merchant service it is more frequent and severe; and in the navies of some foreign Powers still more common; and in both, not unfrequently, so serious as to cripple their ships at sea. And no one will aver that diet, if not the sole, is at least the principal cause of this. But it is unquestionable that the loss of weight which occurred during the voyage from the Cape of Good Hope to Sydney (Table 2), which only required time to manifest itself more forcibly and widely among the crew, and ultimately become developed into actual disease, had also diet as its sole or at least principal source, as did the increasing sick-list towards the end of the period; results which the present favourite antiscorbutic, lime-juice, could not prevent. And though facts are cited by various writers to attempt to show that salt meat does not produce scorbutic ailments provided fresh vegetables are supplied, this appears drawing a rash conclusion; for doubtless were a salt-meat diet continued for a sufficiently lengthy period, the deleterious influence of the one would ultimately prevail over the prophylactic properties of the other, and scorbutic affections more or less marked ensue. Fresh vegetables have probably no power beyond warding off and lessening the injurious results of a prolonged salt-meat diet. Many experienced physicians believe that the beneficial effect of lime-juice as an antiscorbutic extends no further, and that it will not prove a complete preventitive if the voyage extends beyond a certain period, even though we increase the quantity issued, as its influence on the system lessens. Dr. Bryson says, that "it will not prevent the evolution of this disease under the present diet system for an indefinite time, or retard it according to the presence or absence of other predisposing causes, for more than three, four, or perhaps six months." Various causes, especially an improved dietary and shortened cruises, prevent the development of the diathesis in the widespread and serious form it once assumed, and limit it to an occasional mild and solitary manifestation in Her Majesty's Navy; but still the elements of morbid action are evident; and are we not justified in believing that much of the disease which occurs during long voyages, especially towards their termination, has a dietetic origin and scorbutic alliance, like the co-existing decrease in weight; more particularly when the tropics are entered, and the injurious effects of diet are augmented by those of climate; and that, for example, many of the phlegmons, abscesses, and asthenic inflammatory affections, so prevalent on shipboard as to incapacitate 300 men daily; and of the ulcers which sicken 240 daily, and invalide sixty-four yearly, as well as cutaneous affections and other minor ailments prevalent on shipboard, if not solely caused by the sea dietary and tropical regimen, and essentially mildly scorbutic from a minor degree of blood-vitiation, are at least partly their result, and certainly both materially intensified and protracted thereby? *

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Climate,

* These, and subsequent averages, are for a period of ten years, viz., 1856 to 1865, inclusive.

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Climate, too, has long been recognised as a fertile source of sickness among seamen. We are familiar with a class of ailments usually termed tropical; and maladies of this nature, both mild and serious, including hepatic and enteric ailments, fevers, and many other forms of disease, form no inconsiderable part of the naval surgeon's practice. But although modern hygienic innovations have materially diminished these both in force and frequency, the naval medical returns will show that warm latitudes furnish a large proportion of the disease which still occurs in the service, both of the varieties strictly speaking climatic, and others not specially so. Also that the per-centages of sick, hospital cases, invalids, and deaths, are all highest, as a rule, in the warm regions, *e. g.*, the West Coast of Africa or Gulf of Mexico, and least in cold or cool ones, like England. And further, how these rise and fall as the station partakes most of the temperate or tropical character. Thus the "Coast," which is entirely sub-equatorial, is highly prolific of disease; and, according to the report for 1865, furnished 9·69 per cent. of invalids, and 5·77 of deaths: as is China, which is principally tropical (map), and sent 5·48 per cent. of invalids, and 2·12 of deaths; while chiefly temperate stations, like Australia, furnish fewer cases, viz., 2·68 per cent. of invalids, and 1·38 of deaths; and altogether cool ones, like the "Home," the least of all, viz., 2·16 per cent. of invalids, and 0·59 of deaths. So manifest is this, that if the per-centage of sickness or mortality on any station is always above the average, we may conclude that it is in its tropical part this has arisen. And it may be laid down as a rule that stations are unhealthy in the direct ratio of their tropical to their extra-tropical area; the greater the former the higher the amount of disease. And to these facts the army returns and private experience closely correspond.

Nevertheless, though the preceding experiments go far to prove that climate alone is a source of decided physiological change closely bordering on disease, which would doubtless actually ensue under a longer continuance of the cause, a fact from which we may fairly infer that this agent, singly and unaided, often produces many serious ailments; there are good grounds for believing that, though perhaps the strongest, it is not the sole morbific agent in equatorial latitudes, and does not always, and perhaps not so often as commonly supposed, act alone, but in concert with others in producing marked results, either physiological or pathological. The inhalation of the impure air of the sleeping-deck, necessarily most unwholesome when the temperature is highest, is unquestionably a medium which materially intensifies the effect of tropical climate. But a contrast of Tables 5 and 1, as given in Table 9, the one showing the influence of a warm latitude, and the other that of climate and diet combined, proves how much the food issued to sailors at sea augments the loss of flesh and strength; from which we may safely conclude that it has an equally marked tendency to intensify the diseases which spring from the same origin. And of these two sources of sickness liable to be added to that of climate in the tropics, both introducing subtle poisons into the blood, the one by the lungs and the other by the stomach, the latter, or ship diet, is probably the more potent of the two in augmenting the malific tendencies of warm climates, and

and inducing the diseases so common and often so fatal there. Thus while it is certain that a salt-meat diet deteriorates health, there is also strong presumptive proof that it materially influences both the force and frequency of disease, especially when conjoined with a debilitating climate. And, having shown that it is both pathologically and practically erroneous, let us next consider whether or not it is theoretically and physiologically wrong.

Though man is in a limited sense, and more than any other animal, cosmopolite, nature has not only allotted each race a suitable home, but made special provision in these for their aliment, and laid down certain laws for their guidance therein, which are never broken with impunity. And it is on his proper food and in his own zone that he enjoys the highest health. A material departure from either is certain to be followed, sooner or later, by disturbance of the system, if not disease. And if he must migrate, either to a higher or a lower latitude, he is most likely to avoid, or at least limit, both consequences by adopting native habits, and endeavouring to mould his pliant frame to altered circumstances. It is in this direction that we must look for an explanation of the real nature both of these pathological results and of the previously demonstrated changes in weight induced by dietetic and climatic causes, phenomena which are so intimately allied, both in class and origin, as to constitute one and the same series; and the solution of the origin of which is of even greater interest and higher importance than the mere decision of their existence, inasmuch as it may enable us to decide how far we make nature's dictates our guide, and follow this best of all instructors in framing our hygienic and especially our dietetic systems.

The climate best fitted for the Anglo-Saxon is that which lies above the 40th parallel of latitude in the northern, and the 30th in the southern hemisphere. It is that in which they have been born and reared, or one closely resembling it, which best suits our sailors. And when circumstances, over which they have usually no control, compel them to leave this and enter warmer or colder countries in either hemisphere, and particularly when doomed to serve in the former, with the peculiarities of which their frame appears less competent to contend, various functional and structural physiological deviations accrue in the event of the non-occurrence of acclimatization, a phenomenon of doubtful existence, which may ultimately and sometimes does very speedily end in the more marked departure from health which we term disease, the advent and character of which necessarily depend much on individual vigour and the intensity or length of exposure to the exciting agency. And although these phenomena are not usually so serious as would result were the residents in either extreme of heat or cold to exchange abodes, because the vicissitude it involves is less momentous and the vital resiliency of the dwellers in the intermediate zones great, they are still sufficiently severe. Ailments of a purely climatic origin, no doubt, form a considerable proportion of those tropical maladies from which our seamen suffer so seriously on certain stations; though, as the diseases of strangers sojourning in a foreign clime, these necessarily differ materially from, and are not only more

App. No. 4. serious and frequent, but also dissimilar in character from those which prevail among the aborigines breathing their native atmosphere.

On the other hand nature has no *universal* dietary, one adapted for all races and every clime. For while the system of the natives of the tropics is best sustained by vegetable, and, of the frigid zone, by animal food, in the intermediate region they require mixed animal and vegetable matter. Any departure therefrom is certain to be followed by more or less bodily detriment, so that if the inhabitant of any of the three, for example, the temperate, does not abandon the food so freely supplied in his allotted locality, but less plentifully elsewhere, on passing its confines, but adheres to his mixed diet on entering either tropical or arctic regions, instead of making it chiefly farinaceous in the one and principally fatty in the other, and thus continues to pour into the stomach more nitrogenous in the first case, and in the second less carbonaceous material than the system needs to form new tissue, reconstruct the old, and maintain heat, he introduces extraneous and unnecessary elements into the blood, the elimination of which throws a strain on various organs which they cannot always bear, and which is more than ever likely to cause the constitutional changes induced by climate alone to pass beyond the bounds of health. The adoption of a too rich and nourishing diet in warm latitudes, often dangerous in a cold country, is not only highly obnoxious in itself, but doubly so by tending greatly to increase the evil effects of climate; and it is usually to both that the sickness so prevalent there is due. This is doubtless the source of a still larger number of those ailments so common among seamen in many low latitudes, long and specially noted for their insalubrity. The longing which man often feels for succulent vegetables when subjected to unaccustomed heat, and the disinclination for animal food, are indications which ought not to be lightly treated; and instead of enforcing the continuance of the diet scale suited for temperate latitudes, when they approach the equator, we would preserve health better were we rather to adjust the ingesta to the genuine, though necessarily not to the imaginary, wants of the system, and when entering a tropical region rigidly enjoin a tropical regimen.

The sustenance which nature thus liberally supplies mankind in every habitable region, and even in some which are barely so, is always found in the *fresh* and never in the *salt* state. The latter is not only an artificial form of food, but that which departs more than any other both in structure and chemical composition from the primitive character of what she provides; and, like all substitutes for original productions, it is not only faulty and inefficient as a life-sustainer, but injurious. If, therefore, in sending our vessels to sea in any latitude, but more especially in the tropics, we attempt to keep their crews in health, a more important indication towards preserving their efficiency than physical training, by giving them aliment which yields not only too much animal and fatty and too little vegetable matter, and the former in a condition which experience has long and amply proved to be unfit for the proper re-construction of the ever-wasting fabric, even in temperate latitudes, and

and still more in warm ones, need we be surprised at the large per- App. No. 4.
centage of sickness which prevails under the present diet system, especially during tropical service, or the high ratio of hospital, invaliding, and fatal cases? Though climate and injudicious dieting are in themselves fruitful sources of disease, it is ailments which have a compound character, and are partly climatic and partly dietetic, which constitute by far the largest proportion of the affections peculiar to warm latitudes, and especially those from which sailors often suffer so severely. In our etiological inquiries we are too ready to refer disease, and especially tropical ailments, to extraneous and often obscure if not fanciful sources, while we overlook or contemn such as are simpler, more obvious, and closer at hand, and especially one of internal origin, viz., diet; and we are especially apt to ignore or despise the influence of salt meat as a debilitating medium, both on healthy and sick subjects. Food, though long, is not yet sufficiently, recognised as an active instrument in the causation of disease, as it also is in its cure and prevention. And climate, though an important morbific agent, both predisposing and exciting, especially in the tropics, gets far more blame than it really deserves, and is often reproached when other causes merit equal if not greater censure.

A brief chemico-physiological consideration of the former doubtfully injurious and latter decidedly deleterious effects of tropical climate and diet will also materially aid our investigation. In these agencies it is evident that seamen have two insidious foes that sicken and slay far more than the open enemies against which they have sometimes to contend. We already know well enough when and where they act; and if we can ascertain how they operate, and which of the many vulnerable points of the system they attack, it may enable us to direct our opposing or reparative efforts with some prospect of success, and thus realise for the sailor results which he cannot accomplish for himself.

The principal effect of the first and greatest of these, viz., excessive warmth on the system, long since pointed out by Copland, is chiefly to diminish the changes produced by respiration on the blood, from which there follows a long train of secondary phenomena. The carbon, imperfectly discharged by the lungs, accumulates in the blood, to be excreted either by the liver, skin, or intestinal canal. An exaggerated function in these organs, and a compensating pulmonary decrease, succeed. And so long as they sustain this revolution, health is enjoyed. But if impeded in action, the noxious elements which ought to be thus eliminated, necessarily augment and vitiate the all-important vital fluid, and ultimately both body and brain. It is to this that we largely if not principally owe the lessening weight, the daily weakening system, and sensibly failing health which befal a large majority of every ship's company; as well as the hepatic, intestinal, and febrile disorders which attack many; and the mortality which often saddens their comparatively limited stay in passing through or serving a commission in a tropical climate. And to this also is due the attenuated and enervated frames, modified constitution and temperament, frequent ailments, premature decay, brief lives, physically and mentally degenerate offspring, and ultimate

App. No. 4. extinction of race, which result from the longer sojourn of more permanent European residents.

The diet which nature provides for the tropics is such as suits both the system and the clime. There the body needs no additional external or internal caloric, as in arctic, and to a certain extent in temperate regions. Nor does it require so much muscle-yielding material as the frame of the more active inhabitants of colder latitudes. Hence the carbonaceous and nitrogenous elements correspond to the limited demand, while the hydro-carbonaceous constituents are proportionately large. It is this diet which Europeans ought to adopt when they enter tropical regions; and which, with certain modifications to meet special requirements, is best adapted for our seamen when sent thither. And when we adhere to the scale originally constructed for their native latitude, instead of accommodating their regimen to altered circumstances, it is equivalent to throwing more muscle, fat, and alcohol* into the stomach, and carbon and nitrogen into the blood than the system is able to make use of, and the emunctories to eliminate, and chiefly the liver and kidneys on which the burden of discharging these principally falls; while we are withholding the additional vegetable matter which appears indispensable to preserve the body in health, and that at a time when the system, revolutionised by a change of climate and habit, and struggling to mould its different organs and functions to new conditions, is little able to oppose any additional malific agency. To preserve health in the tropics we must consult climate as well as other physical conditions of life; and it is as necessary there to regulate the food and drink in accordance with the wants of the system, as it is to modify the clothing, exercise, &c. to the meteorology. Seamen doubtless need a certain amount of fleshy food in warm latitudes; but to give them the same quantity as in temperate climates is evidently against all physiological law. We err in providing a diet which consists so largely of meat for the tropics, when it ought to be one which is principally vegetable. True, the naval dietary contains vegetable matter, strictly so called, but of a highly nitrogenous nature, which not only does not supply the blood with material fit for a tropical climate, as does the rice yams and other roots, fruits, grain, and vegetables commonly used for food by the natives; but, like the animal matter, yields so much of the muscle-yielding constituent as to redouble the danger arising from super-azotized blood. The evil effects of this obvious mistake on the weight we can only ascertain relatively, because it is impossible to separate them from those of climate, which acts in concert with it. But a contrast of the result of both combined, with that of the latter when it acts singly (Table 10), shows how materially an injurious diet will increase the loss of flesh which occurs in warm regions; and experience, both private and military, especially in India, testifies that not only is health

* Theory suggests, and experience proves, that, in ordinary circumstances, alcohol in one of its worst forms, rum, is a pernicious adjunct of the present scale, and at least unnecessary if not prejudicial to health in temperate latitudes; while in the tropics it is not only needless, but highly injurious, both as a local irritant of viscera already over-excited, and a vitiater of the blood otherwise overloaded with impurities.

health preserved, but disease and mortality decreased, the more nearly the European conforms to indigenous diet, and the less closely he adheres to that which prudence should prompt him to discard on quitting temperate latitudes. And to this also, viz., the use of a too stimulating diet, and non-adoption of native usages, is doubtless due no inconsiderable share of the sickness so prevalent and disastrous along the tropic shores off which our cruisers coast or lie; where the over-taxed system, alternately excited and depressed by excessive heat and an extra-tropical dietary, is too apt, when thus obnoxious to disease, to succumb and fall a prey, if not to these alone, to the many other morbific agencies ready to attack the race, and especially the alien, when thus harassed, in climes which, as a rule, are sickly in proportion as they are sultry. As an excess of azote in the blood is often a prolific source of disease, so its non-elimination is also conducive to the development and propagation of many miasmatic maladies.*

But modern sea-dietaries add another element to those already pointed out as militating against the salubrity of seamen in warm latitudes. Long confinement to meat preserved in salt, causes loss of weight, and ultimately serious sickness, even in cold climates; while in high temperatures both results undergo a decided increase; and in the production of these phenomena this agent acts in several ways, which it will be not more interesting than useful to consider.

By pickling, fresh meat loses at least one-eighth of its weight in the brine, which extracts much of its gravy, including gelatine, albumen, osmazome, water, phosphates, lactic-acid, and other vital principles more or less essential for nutrition. Subsequent boiling still further deprives it of these elements, and again reduces it in bulk by one-fourth.† While, by both processes, the fibrin which composes the muscular fibrillæ, and also their protecting gelatinous sheath or sarcolemma, are shrivelled, corrugated, and rendered hard and dry. And if we administer meat thus chemically and physically altered,

* Copland—Dictionary of Medicine.

† The following experiment will prove that this estimate is not excessive, and rather under than over the truth.

	Salt Pork, 1½ years old.	Salt Beef, 1½ years old.
	Lbs. oz.	*Lbs. oz.*
Original weight when taken from pickle cask -	10 4	8 4
Weight after being cooked - - - - -	6 1	5 8
Loss by boiling - - - - - - -	4 3	2 12
Per centage of loss - - - - -	40·85	33·33

Thus, in the case of the salt beef the decrease in weight was exactly one-third; and with the pork considerably greater, viz., two-fifths. Both were cooked in the ordinary way, and first soaked for two hours in fresh water; then boiled one hour and a half in the ship's coppers. Half a pound of fresh or preserved meat is fully equal in nourishing power to one pound of salt beef or pork as served out to seamen.

App. No. 4. altered, as food, we give what strong, young, and healthy seamen may subsist and even fatten on for a time (Table 2), but which soon acts injuriously, and causes the majority to lose weight, and, if continued, ultimately inflicts serious injury on all. Its salt and hard indigestible fibre, which the gastric, biliary, and other secretions necessary for digestion can with difficulty dissolve, is apt to act as an irritant on the stomach and alimentary canal; a sequel especially dangerous in tropical latitudes where diseases of these viscera are often imminent. Deprived of its original juices, and containing little real nutriment, it is incapable in any latitude of furnishing sufficient pabulum, and more than all of yielding the proper elements for sustaining the frame. While in the salt with which it is loaded we find not only a frequent mechanical cause of disease, but a troublesome cumulative blood-poison in all, but especially in low latitudes where the system has climate and warmth as well as diet to oppress and often overpower it. This has long been a fertile source of sickness, and still causes not only occasional true scurvy, but other ailments of decided scorbutic alliance already alluded to, as well as much of the dyspepsia, dysentery, and diarrhœa which now prevail in tropical regions, and occur oftenest in systems tainted by this cachexy from the prolonged use of salt meat and an extra-tropical regimen.

Besides acting directly as a morbific agent in all latitudes, especially in the tropics where it is conjoined with a superfluously nitrogenous and carboniferous diet, salt meat is necessarily indirectly malific through the influence it has on nutrition and growth, particularly in those affected by the different constitutional diatheses now so wide-spread, especially the strumous, syphilitic, and rheumatic, that originate numerous diseases and complicate many more. If we feed men so affected, as many and perhaps the majority of sailors unquestionably are, and it is difficult to enter or keep them otherwise, on food of a debilitating and innutricious nature, and of itself a frequent source of the former condition, which so often aggravates the other two; instead of furnishing such as will yield matter for building up healthy tissues and aid the vis medicatrix in throwing off morbid germs; need we wonder that these and similar abnormal habits of body should, sooner or later, become developed into active disease? It is, doubtless, thus that the innumerable forms of scrofula are manifested, and especially *phthisis, often so acute* and speedily fatal in the tropics, from which alone no fewer than 306 men are invalided, and 112 die annually. Thus, also, why primary syphilis and gonorrhœa are so tedious in their cure at sea, and syphilitic affections so frequent and intractable as to necessitate the annual invaliding of seventy-four men, and the excusing of 439 from duty daily. And thus, too, in great measure why rheumatism is so common and so severe as to result in the invaliding of 189 men yearly, and the daily incapacitating of 228. A system possessing a strong proclivity to, and ready at any moment to develope unhealthy action, with blood vitiated, either from hereditary taint or by cumulative poisons slowly introduced by the stomach, lungs, or skin, is little likely to keep in full health and vigour even in temperate latitudes, and far less in the tropics, by being fed on aliment which, instead

instead of aiding, only opposes nutritive and reparative processes; and, so far from assisting nature to get rid of noxious matter, only adds a new source of detriment and disease. And it is also thus that so many men, weakened by injudicious dieting during lengthy voyages, fall a ready prey to the morbific agencies prevalent on foreign stations, especially tropical ones. By our own act we induce debilitated frames in those whom it is our interest to strengthen, and thus not only invite the attack of disease generating media, and furnish them a suitable nidus, but render the system less able to resist their influence. And hence partly why ships on warm stations become more and more sickly; and why, on visiting infected or malarious districts, their crews succumb so readily to epidemic and other ailments, which otherwise would only attack their victims in a mitigated and comparatively innocuous form. Our care of health, and attention to dieting, are all the more necessary as the commission and stay in the tropics lengthen; and the progressively weakening system is daily becoming less able to withstand exciting or predisposing causes of disease, and requires vigilant nursing, and, above all, judicious feeding. Nor is it surprising that blood elaborated from such food as we now administer, and physically, chemically, and vitally changed, should prove inefficient to supply plastic material to reconstruct firm, sound and healthy tissue; whether to replace the normal interstitial waste, restore the excessive loss caused by disease, or heal lesions of surface, as the cutaneous in ulcer, or the mucous in dysentery.

A study of the laws of disease, like that of the closely related rules of health, thus shows that the conditions which maintain the one and those which induce the other, are of the simplest character; and that nature, though a kind, is a stern nurse, and never fails to punish when she cannot prevent disregard of her dictates.

D. Practical application of the Inquiry.

The value of physiological experiments is commensurate with the adaptability of the evidence they elicit to obviate more important pathological phenomena. As the discovery of the source of disease is the first step towards its cure, so is it for its prevention and perhaps ultimate extinction. Now the preceding facts not only reveal the origin of much weakness and predisposition to sickness, but also indicate the means by which these and greater results that may subsequently ensue can be obviated. Our endeavours to prevent or lessen the one should therefore be identical with those directed against the occurrence of the other. Diet and tropical climate are two malific instruments which doubtless originate a large proportion of the ailments, and cause much of the invaliding and mortality which still occur in the service. These effects accrue partly from the potency of the excitants, evidence of which has already been given, and partly from the numbers unavoidably exposed thereto.

Thus, with a navy of 50,000 men, we may safely aver that one-fourth, or 12,500, are constantly at sea, and subjected to a salt-

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meat dietary. And the map will show that of the eight foreign stations to which our ships are sent for commissions varying from two to five years, although only one, viz., the Coast of Africa, is wholly inter-tropical, no fewer than six are tropico-temperate and lie partly in both regions, while one, viz., the Mediterranean, is entirely in the temperate zone, like the "Home" station. The tropical cruizing ground, which comprises the entire "Coast," and portions of the Pacific, Brazils, West Indies, Cape, East Indies, China, and Australian commands, is therefore extensive, and the number of men and vessels constantly employed thereon so considerable as to amount, if we include the variable "irregular" force, to about one-fourth of the whole. Thus, with a navy of 50,000 men, there are about 12,500 serving in warm latitudes, and subjected to the agencies so prevalent and potent there. Nor is this all; for few seamen escape foreign service, and the majority undergo it so repeatedly that we may safely estimate that two-thirds of every sailor's time is spent abroad, and at least one-half in sultry regions; and, in a series of years, few of the entire 50,000 avoid more or less and sometimes very prolonged exposure of this kind.

And the indication is obvious. To prevent an effect, discontinue its cause; to remedy a result, remove the agency which produced it. Long voyages and frequent change of climate are inseparable from the service; but we may easily obviate the evil consequences of the sea-dietary; and we already possess the means to make both of these frequently employed and powerful therapeutic and hygienic agents, health-giving instead of health-impairing, and as salutary to sailors as they often prove to landsmen. Our ships of war must, and may always have, to serve in the tropics; and we cannot therefore help subjecting their crews to high temperatures and debilitating climates, nor can we yet tell how we may directly prevent the constitutional effects of heat, or counteract injurious climatic influences. Nevertheless we know that various hygienic expedients often enable us indirectly to oppose the one and materially lessen the other. And, aware as we are how much diet aggravates the evil effects of this unavoidable obnoxious agent, and also how greatly the former is itself to blame for much of the sickness which occurs in the service, it will be evident that, by removing the pernicious medium within our reach we will not only avoid increasing, but tend to diminish, the potency of the less tangible one which lies beyond our power; and that a sanitary improvement in the food will not only completely banish malific dietetic sequelæ, but materially decrease climatic ones; the former wholly preventible, the latter only partially so, and thus by one and the same reform do much to remedy the pernicious tendencies of both. The circumstances in which the system is least acted on and altered, whether as to weight or disease, are those in which it is most advantageously placed as to diet and climate in accordance with what nature suggests and prudence prescribes, and it should be our aim to place our sailors in this position when possible. Rectify and reframe the faulty regimen, make the diet correspond with the clime, and disease and death would materially decrease when most prevalent in Her Majesty's Navy, viz., during long voyages and tropical service. To have healthier, longer-

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lived men, and, as such, better seamen, we must feed them appropriately. App. No. 4.

In all cases, both in preserving health and producing disease, diet acts in and through the blood, and if we would maintain the former condition and avoid the latter contingency, we have only to follow a safe rule applicable in all circumstances; viz., to regulate the ingesta so as to supply that fluid with plastic elements of such kind and quantity as will exactly counterbalance the continual drain which the various processes of animal and vegetable life in the human economy involve, and increase, diminish, or vary them so as to enable growth to equal waste of tissue. We must cease to consider it immaterial what sustenance we give large bodies of men like those which constitute the services, provided only we issue it in sufficient abundance; nor does the great object in naval dieting consist solely in keeping our seamen alive. We must make their diet accord with the wants of the system, and in framing our dietaries, consider not only the quantity and quality of the food we give, but also its nature. We ought to administer such aliment as will furnish material to assist nature in converting the growing lads and young men who form the mass of our ships' companies into the athletes required to man our ships, and not only bring, but preserve them, in the highest possible state of physical efficiency wherever they are sent, and not only keep them in health, but have no tendency to induce disease *per se*, or develope or aid other malific agencies of either internal or external origin. Now, candid inquiry must decide that in all these essentials is the present naval dietary found wanting, with the exception of the fresh meat harbour-scale for temperate latitudes, which is not only ample but admirable in kind, as proved by its effects on weight and health (Table 6). But the same amount of animal food, and the limited supply of suitable vegetable matter in the tropics, is not only detrimental to health, but an all-powerful generator of disease, and auxiliary of other malific agencies, such as climate, malaria, &c. (Table 5). While the diet scale for sea-service acts not only as a depressing medium in cool regions (Table 2), and a fertile source of sickness in various forms, some fortunately comparatively rare in Her Majesty's Navy, though of frequent occurrence in the merchant service, and others, a still too common casualty in both, but becomes in warm latitudes, where it is not only too salt but too highly animal, and often conjoined with climatic and other influences, a cause of serious bodily detriment (Tables 1 and 7), and one of the most frequent of all originators of disease among seamen.

Thus, theory and experience, physiological reasoning and pathological fact, all testify that the present naval dietary, suitable enough because the best that could be devised for a bygone day, is in several respects erroneous and unfit for an age of naval reform and sanitary innovation, especially when a necessity is evident for no longer retaining the salt meat that forms so material a constituent of our present system, or enforcing the continuance of an extra-tropical regimen in inter-tropical regions, and a general improvement in the plan of provisioning our fleets appears so highly expedient. With salt meat expunged or almost banished from our sea-dietaries, and

App. No. 4. special provision made for tropical, as has been long and wisely done for arctic service, usually far less detrimental to health, we might expect the salubrity of our ships to equal if not surpass that of crowded communities on shore. A judiciously selected dietary would do more than anything else to preserve the vigour and physique of our men, and the efficiency of our crews, both in and out of the tropics, and sickness would be equally influenced thereby. It is by the introduction of a prophylactic regimen, rather than by the administration of corrective medicinals, such as lime-juice, that is the only sure, as it is the sole philosophical plan, of wholly extirpating scorbutus and its numerous closely allied ailments, which are best met by checking them in their origin, and making an advance on the old curative method, to obviate their approach. To attempt to eradicate these by the plan now practised, that of giving an antidote along with the hurtful agent, and first inducing disease and then supplying medicine to remedy it, is as unwise as would be an endeavour to permanently cure ague by administering anti-periodics without removing the affected from the malarious district which produced, and is likely to protract, his disease, or, to subdue an epidemic of fever of appreciable and accessible derivation by treating individuals without checking the subtle poison which overpowered them. And it is by the substitution of a diet which is not only free from this intensely saline impregnation, and other obnoxious elements, but also more akin to what nature suggests and common sense advocates, in place of the present tropical scale, that we may expect to decrease the number of so-called tropical diseases, and make the health of seamen serving in warm latitudes resemble more that of the natives, although we need never expect them to enjoy a corresponding immunity from endemic ailments. While a better selected fare would also tend greatly to prevent the acquisition, or the development where they already exist in a latent form, of struma, rheumatism, secondary syphilis, and similar constitutional taints, which are frequent sources of sickness among seamen, both as single and conjoint morbific agencies, and which nothing is more likely to induce than defective or erroneous dieting.

A limitation in the issue of salt meat at sea, amounting almost to its total abandonment as an article of diet, is a reform which appears unavoidable. But although this would of itself greatly diminish disease, the welfare of the sailor requires no less than a fourfold instead of the present twofold dietary. And it is a system which has an appropriate scale for sea and harbour in temperate climates, and a separate and special provision for these services in the tropics: that can alone raise the health of seamen to its highest standard; that will decrease the sickness which is still more prevalent than it need be in all latitudes, especially in the tropics, and render the salubrity of the latter to seamen more akin to that of colder regions, and its diseases relatively not more numerous or serious: results which are all the more likely to ensue if the innovation in question is aided by other changes now in progress in the internal economy of the service, particularly more perfect ventilation, careful selection of strong young men for service in warm climes, and either shortened commissions or frequent reliefs of ships by others from temperate regions.

regions. But this important and essential modification in the victualling of the navy has more than its highly beneficial influence on health and the prevalence of sickness to recommend it, and there are other reasons for giving up the old, and other motives for constructing a new dietary than merely medical ones. For not only would the diminished monotony which is a concomitant of the change be a material boon to the sailor, especially if the substitute supplies different kinds of meat, and not only beef and pork, but also mutton, veal, fowl, &c., and a better class of cook is provided, and a remodelled *cuisine* which does not limit his culinary efforts to invariable boiling, but the reform would effect an actual pecuniary economy, both in the necessary food; a more limited issue of lime-juice; a decreased expenditure for physic and medical comforts; and a diminished outlay for hospital, invaliding, funeral expenses, and training new men, that would follow the advent of an innovation certain to be at one and the same time healthier, pleasanter, cheaper, and more satisfactory to the men than the antiquated usage it had supplanted, hallowed perhaps by custom but contemned by common sense*.

Instead of entering into minute details of the dietary that would be more appropriate for seamen, a few general indications as to the best forms of food to adopt in lieu of or in addition to those now in use, appear all that is necessary to give here. A recent Admiralty Circular orders that "preserved beef be issued on every alternate salt-beef day at sea"†. This is an important step in the right direction, that will materially diminish the injurious influence of salt-

* The following carefully computed table will show the cost of an ample dietary that would give ¾ lb. of preserved meat at sea, and ½ lb. in the tropics, 6 days per week (either of them fully equal in nourishing powers to 1 lb. of salt beef or pork) with a suitable allowance of preserved potatoes and rice to alternate with flour pudding and pea soup.

	Present scale.	Proposed Scale.	
		Extra-tropical.	Tropical.
	pence.	pence.	pence.
In Harbour - -	11·11	11·11	9·94
At Sea - - -	13·30	14·86	12·43

Thus, the sea dietary for temperate latitudes, 14·8 pence per man per day, would be somewhat more than that now in use, viz., 13·3 pence; but that for tropical regions rather less, viz., 12·4 pence; while the tropical harbour scale would diminish from 11·1 to 9·9 pence. Preserved meat has been reckoned at one shilling per pound. And adhering to our former estimate of an average navy of 50,000 men, of whom one fourth, or 12,500, are serving at sea, and an equal number employed in tropical regions, it will be found that the new dietary would be cheaper than the old by 3·6 *d.* a day, or 5 *l.* 11 *s.* 8 *d.* a year. From this we may at least conclude that no additional expense would be incurred.

† April 12th 1867.

App. No. 4. salt-meat dieting; and doubtless preliminary to a more thorough reform: for if we would have this completely annihilated, it would be prudent to limit it to once a week in temperate latitudes, and perhaps still more in the tropics. The impossibility of procuring fresh meat, strictly so called, except in harbour, necessarily limits us to the use of this substitute. And it is much to be regretted that no variety of preserved provision yet made is entirely faultless, or capable of fully supplying the place of the newly slaughtered animal. But of all the varieties yet manufactured, whether sun, smoke, or stove dried, sugared, spiced, &c., the ordinary tin-preserved meat in the same or a similar form to that now employed, appears, when of good quality, to combine the greatest number of advantages with the fewest disadvantages. Nor should we, though desirous of a better, that may be not only more like the original, but of superior hygienic properties, despise the by no means very defective or unpalatable forms we already possess, and suffer salt meat to continue to sicken our sailors and cripple our fleets; but prudently accept the material though imperfect improvement, and substantial though incomplete results, we already may.

A fine field for practical scientific research is that which has for its aim the invention of a mode of preserving edible animal tissues, so that they may lose little or none of their primitive physical appearance or chemical properties; and when cooked resemble actual fresh meat as closely as may be in flavour, juiciness, and nourishing powers. It is still a problem how to limit or nearly altogether prevent those putrefactive changes which usually speedily follow death; and whether this is to be effected by the action of some chemical introduced into the blood during life either by the stomach or lungs, and thence carried to the tissues, the same substance acting both as a poison to the animal and a preservation of its body, though subsequently inert to the consumer: or achieved by some post-mortem process which brings the chemical in close contact with every part to be preserved, like Morgan's method of vascular injection; who had he pointed out a better anti-corruptive than the salts now employed, would have far enhanced the value of an invention at once the most rational yet devised for bringing anti-putrefactives in intimate relation with each particle to be acted on, and so simple that we can only wonder why it was never before thought of. The natives of North China allege that they possess some root, which, given to an animal before death, has the property of preserving its tissues from putrescence. This may not be altogether fabulous; and the hint at least is worth having. As we now have animal, vegetable, and mineral matters which prevent disease; so others may yet be found out which oppose decay. We already know that certain articles used as food, *e. g.* tea, coffee, alcohol, are conservative of the living tissues, while others, *e. g.* salt, tend to facilitate their disintegration, at least when given in excess. And we may yet detect more active agents of the former class than we now possess; and medicine aided by her handmaid chemistry, give to the world a discovery that would benefit other nations and other navies besides our own, by furnishing cheap food to the million and healthy fare to seamen; in addition to giving nature

nature her safest and best ally in the preservation of health at sea; and the naval surgeon his surest aid both in the prevention and cure of sickness. App. No. 4.

But while striving to avoid the danger arising from a salt meat diet, we must not fall into that apt to result from one too exclusively fresh. Without a due supply of an appropriate vegetable element, the latter would be as likely to induce disease of the scorbutic type, as would one of the former class. For with the exception of lime-juice, the split peas, flour, biscuit, and other matters which form a large part of the present naval dietary, are more nitrogenous and muscle-yielding than strictly speaking anti-scorbutic; and we therefore cannot rely on them to prevent this issue. And yet there is no necessity for again falling back on what are always to be deprecated and when possible avoided, viz. medicinal prophylactics like these now in use; or for choosing any other than a dietetic to prevent the anticipated evil; inasmuch as we possess in preserved potatoes not only an admirable preventitive of the cachexy, but an abundant, cheap, easily kept article of food, which seamen would appreciate if good and well cooked; and that, given alternately with those above mentioned, would tend greatly to maintain the balance in the animal and vegetable element necessary to preserve health.

The tropical dietary ought to be specially modified; for though seamen do not lead the same vigorous life there as in temperate regions, they do not pass an inert lazy existence like the natives of warm latitudes, nor have they so little physical exertion as the private European residents, or even the soldier on shore. We ought not therefore to diminish the amount of nitrogenous aliment to make it correspond with the allowance of the latter, or even with that of the aboriginal; but should give a judiciously regulated proportion of fresh meat to supply the muscular waste. And in order to augment the equally or even more needful vegetable element in the tropical dietary, no better article of food can be had than the rice, which nature, with singular significance, supplies so lavishly in most warm countries; for, as already mentioned, the pea-soup, pudding, and biscuit of the present dietary are so highly nitrogeneous that an increase in the quantity issued, so far from supplying the vegetable matter specially wanted, would only tend to induce disease by throwing an excess of azote into the blood, a result that would not follow ingestion of the starchy hydro-carbonaceous components of the latter. Again, the ration of rum, already wisely, beneficially, and easily abandoned by a considerable proportion of the merchant service, might be advantageously supplanted by coffee in temperate latitudes, and lime-juice in the tropics, both of them healthy drinks.

The dietetic reform here recommended, as likely to be followed by such beneficial and wide-spread results, when fairly looked at, does not involve so material a change as cursory consideration might lead us to suppose. And the adoption of a preserved meat diet, to correspond in quantity with climate, for the present ration of salt meat, with a modified regimen, less animal and more vegetable for the tropics, could be effected without making any or only a very unimportant addition to the number of edibles now in use on

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shipboard, either for ordinary or particular purposes, and it would only be necessary to increase the quantity of some, *e.g.* preserved potatoes and meat, rice, &c., now chiefly issued as medical comforts, and diminish others, in proportion to meet the new demand. The Dutch, who have a distinct scale for ships serving in their East Indian possessions, appear to be the only power that makes special provision for the tropics; but as it contains little fresh meat or suitable vegetable matter, although both are plentiful and cheap, it is less fit for the occasion than it might be.

The regulation of the change of diet to correspond with climate raises the important question whether it should be an immediate or a gradual process; this experience alone can satisfactorily decide; but we know that nature for the most part rebels against abrupt mutations, whether directed against the ordinary routine of our mental or physical organization. Rapid transitions of temperature or climate, from cold to hot and from hot to cold, are dangerous, and apt to induce serious disease, while sudden changes in food, as from animal to vegetable, or *vice versâ*, are equally hazardous, and nearly as frequent a source of sickness; but although the system here proposed, would involve a combination of both conditions, inasmuch as the frame would have to bear an alteration in the diet while undergoing an important revolution from climatic agencies; we must remember that the modification in diet, in this instance, is a salutary and not a disease generating one, and is meant to meet the requirements of the fabric while subjected to the meteorological vicissitudes, the injurious effects of which it is calculated to lessen. And we therefore conclude that it would not be so fraught with peril as might be supposed, especially as the change is not so very material, and is one not of kind but merely quantity. The fresh meat, rice, flour, pease, and other food fitted for cool climates is exactly that which is best suited for the tropics. We have merely to adapt the amount issued in accordance with the easily understood requiremants of the fabric; and any slight risk that might be run would be avoided by a slow substitution of one scale for that which is to follow; and first alternating the two, and then gradually superseding the one by the other regimen. Thus the change would be neither sudden nor great, and consequently devoid of danger.

As a rule, the three great varieties of climate, the frigid, temperate, and tropical, blend so imperceptibly, that it is often difficult to say when we quit the one and enter the other. Nor can we judge of climate by latitude alone; for many places which are physically in a temperate region, possess a decidedly tropical meteorology, and *vice versâ*. Still it is absolutely necessary, in making the change of diet here indicated, that we should have some criterion by which we may decide where one begins, and another ends. Fortunately, though zonal position is fallacious, and the belts of capricorn and cancer will not serve our purpose, we have in heat and thermometric lines, an easy guide by which we may tell when we have reached or made our exit from a tropical district. And if we take the isotherms of 40° and 70° Fahrenheit respectively, as an index, we can never far err in our estimate of the climatic character of any locality, and

may

may safely lay down as a law that all which possess an average annual temperature above the latter, are in the tropics; while all between the two are in the temperate zone. And knowing as we now do with yearly increasing precision, the general and medical climatology of almost every coast along which our ships of war cruise, the exact spot where the one diet is to be first alternated and then superseded by the other on entering or leaving the tropics, could in most cases be definitely fixed. While in correspondence therewith, the ports of every station might be arranged in two classes, one being tropical and the other extra-tropical; and in doubtful cases, as at sea, almost all of our ships-of-war have a further safeguard in ever-ready professional counsel. The store-ships and depôts which exist on all the foreign stations to supply provisions as wanted, are an additional advantage calculated to facilitate an early and complete reform in our modern yet ancient diet system for seamen.

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Appendix, No. 5.

GREENWICH HOSPITAL REPORTS, No. 1.

OBSERVATIONS on Pulmonary Phthisis at different periods of age; Dr. WM. R. E. SMART, C.B., K.L.H., Deputy Inspector-General.

THE death-returns at Greenwich Hospital from 1st of October 1865 to 31st of December 1866, comprise the names of 128 persons, whose average age exceeded sixty-seven years, the maximum age being ninety-seven, and the minimum twenty-six years, and consequently there exists much that is interesting in the register of autopsies, concerning the organic changes that present themselves in the aged. In these investigations nothing is more surprising than the amount of disorganization the human body may undergo by slow changes of vital parts under the progress of age, so that less ground is left for astonishment at the want of constitutional disturbance that often marks the last stages of existence, when perhaps some insidious attack of purely inflammatory action is about to take suddenly to the grave the individual whose organic functions have been performed through many years in manner or degree inconsistent with the maintenance of life during the periods of growth and activity.

The diseases of old age, like those of infancy, are often difficult of diagnosis, owing to inability on the part of the sufferer to make known or describe his ailments, and often from actual insensibility regarding them. In dealing with such cases the physician is compelled to rely on physical signs, and to trust rather to objective than to subjective phenomena; thus, for instance, it may happen that a man who has enjoyed the highest degree of health of old age, will succumb at once to an attack of pleurisy or of pneumonia, the accession of which has been unsuspected, on account of the minor degree of febrile and organic disturbance set up during the very rapid course of the first stage, which may prove fatal of itself. But if reaction is established, there will be alterations of the conditions of the respiration, pulse, skin and appetite, which, assisted by auscultation, will certify the dangerous state of the patient, independently of his own feelings or descriptions of them. Although it happens in old age that the sounds of respiration undergo material changes, yet the use of the stethoscope is still chiefly to be relied on for the detection of pneumonic or of phthisical lesions, which might escape notice without the aid of the ear. The value of this means of diagnosis is peculiarly great where very little guidance can be gained from the statements of a patient whose life may either be destroyed in a few hours by rapidly succeeding unchecked stages, or may be

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be prolonged by timely counter-irritation over the seat of an organ that has become affected by active congestion or by the restoration of some sluggishly performed secretion, which may have vitiated the blood.

It is found that chest complaints form a very considerable portion of the diseases treated in this hospital, and it may be useful to specify their nature. Among these, phthisis holds the first place, as will be seen in examining this tabular arrangement.

From the TABLE of AUTOPSIES, arranged according to Age.

DISEASES OF THE RESPIRATORY ORGANS.	PERIODS of AGE.							No. of Autopsies.
	20 to 30 Years.	30 to 40 Years.	40 to 50 Years.	50 to 60 Years.	60 to 70 Years.	70 to 80 Years.	80 to 90 Years.	
Phthisis - - - -	1	4	6	4	4	2	6	27
Pneumonia - - -	–	–	–	–	–	–	1	1
Pleuro-pneumonia - -	–	–	–	–	1	–	1	2
Pleuritis - - - -	–	–	–	–	–	2	–	2
Hydrothorax - - -	–	–	–	–	–	3	–	3
Hæmathorax - - -	–	–	–	–	–	1	–	1
Condensation of Lung -	–	–	–	–	1	6	1	8
TOTAL - - -	1	4	6	4	6	14	9	44

In forty-four cases of fatal disease of respiratory organs, twenty-seven are classed phthisis, including all in which deposit, with or without cavities, was found in the pulmonary tissues. The question arises, how much of this was really tuberculosis, or how much was due to preceding or supervening inflammatory action?

If the age-periods had been of five instead of ten years, it would have appeared that between the terms fifty-five and sixty-five, no death was recorded from pulmonary disease. This would seem to be more than a coincidence with regard to the diseases of seamen as a class, showing rather that lung-diseases contracted during the periods of active service carry off the sufferers before fifty-five years of age.

The later series, after sixty-five years, represents the lung-diseases of old age, as they occur among the ordinary occupants of this hospital; and it is remarkable that a large proportion of these fall under phthisis, allied with senile catarrh or chronic bronchitis, and that many die of pleurisy, consequent on cardiac and renal diseases,

App. No. 5. while extreme old age is by no means exempt from purely idiopathic inflammatory affections of the pleuræ and lungs.

Accepting this line of separation as not altogether without significance so far as small numbers may serve to direct inquiry, we see fifteen deaths before fifty-five, and twenty-nine after sixty-five years of age, all in the first group presenting abnormal deposits with or without cavities, and twelve in the second division presenting similar changes; the remaining seventeen cases of old age showing in five instances the effects of recent inflammation, and in twelve either the more chronic results of inflammation of the lung or pleuræ or passive effusion into the pleural sac, causing condensation of the lung, and so destroying respiratory power.

The altered conditions of the lung-substance and the pleuræ, in twenty-seven autopsies of phthisis, are tabulated thus:—

	Age.	Lungs.					Pleuræ.			
		No. of Autopsies.	Emphysema.	Increased Bulk.	Vomicæ.	Collapse.	Pleurisy, Old.	Pleurisy, Recent.	Hydrothorax.	Pneumo-Hydrothorax.
Under - -	55	15	4	11	13	1	14	6	1	1
Beyond - -	65	12	6	10	7	2	10	3	1	–
TOTAL - - -		27	10	21	20	3	24	9	2	1

Thus we find vomicæ and pleuritic inflammation, both old and recent, to exist more frequently in phthisis before fifty-five years of age, and emphysema of lung more frequently after that age.

Increased bulk of the lung is associated with increase of weight, both arising from deposit in the pulmonary tissues: on removing the sternum and ribs, the lungs fill the cavity, and they do not rise up or shrink below the contour of the chest; most frequently the lungs are adherent to the walls, resisting removal without laceration of the lung substance. In parts where the lung is emphysematous, adhesions are less frequent, and the resilient lung may flatten or it may rise somewhat on removal of the parietes. It has commonly happened that the following conditions were present in the same organ—the upper lobe infiltrated with solid deposit sometimes excavated, adherent to the parietes especially on its posterior aspect, and the lower lobe splenified or engorged with serum and blood corpuscles, while the anterior surface of the lung was emphysematous.

Emphysema, or air stasis in the vesicles, is the opposite condition to blood stasis in the capillaries, and is, at first, a compensation to the loss of aerating surface caused by tuberculous or inflammatory blocking up of air vesicles in other portions of the lung. It is said that

that the tuberculous and the emphysematous conditions are rarely found together; this is true, in as far as they do not co-exist in the same portion of a lobe, but it seems probable that while tuberculous growth or slow inflammatory deposit is lessening the breathing surface in one direction, emphysematous changes are to a certain extent increasing that surface in another. Where the processes that obliterate the air vesicles are slow and long continued, the compensating emphysema is the more widely developed, which may account for its more frequent presence in the phthisis of old age.

Collapse of lung is generally caused by the pressure of fluid or air, or of both combined, in the pleural sac; but there are found, in old age, examples of it that seem to have arisen from some defective nutrition of the organ, resembling in some degree that absence of transitional development from the fœtal to the infantile stages of life known as atelectasis, the lung being found withered without any compressing cause being obviously present.

The results of recent or past pleurisy show, by their extent, the degree to which inflammatory action has influenced or complicated the course of phthisis. That it is an important factor, is clear from the finding, in twenty-seven inspections, twenty-four examples of old, and nine of new pleuritic deposits, both varieties being more common at the earlier period of life. With pleuritic results so evident, it cannot be doubted that pneumonia has been frequent, but in the present state of pathological science it is impossible to distinguish the simple inflammatory from the tuberculous deposits or growths, and to define how much depends on each morbific process, or where one ceases and the other begins. This distinction is readily made so long as inflammation is progressing around tuberculous centres, but not so when the results of inflammation are blended with the tuberculous growth and its degeneration.

By producing a few recorded cases I shall hope to show the frequency of combination of the two morbid actions, premising the difficulty of deciding, in most instances, whether the deposit has been caused by a primary inflammation followed by tubercular growth, or by inflammation consecutive on that caco-plastic nutrition.

Very large vomicæ; congested lung exuding much pus; general pleuritic adhesions; ulcerating glandular disease of large intestine.

J. G., æt. 33 at death, marine of 13½ years' service, was admitted on the 19th of October 1865, a month after having received discharge from his corps for phthisis.

On admission he had the constitutional symptoms of advanced phthisis, and gave the physical signs of cavities in condensed tissue of the upper lobes. Through five months his state varied very little. He then had diarrhœa followed by œdema of the feet, which yielded to treatment. The physical signs indicated large caverns in the right apex, and a general breaking up of the condensed tissues in the left. On the 28th April, from catarrh during a cold east-wind, there were symptoms of acute congestion under which he sank, with great dyspnœa and lividity of face, on the 30th April, about seven months after being invalided from active service.

 Inspection

App. No. 5. Inspection by Assistant-surgeon D. B. Thomas. — Moderate emaciation, sinking of the infra clavicular and intercostal spaces. Pleura firmly coherent on both sides. Lungs filling up the cavities and very emphysematous anteriorly, the right overlapping the heart; the posterior two-thirds soft and lacerable, greatly congested, loaded with reddish-brown serosity, faintly crepitant and buoyant; the left the same, and on section, exuding everywhere from the smaller bronchi a thick yellowish pus. In both apices large caverns posteriorly, those of right containing a dirty-looking purulent fluid, the walls being thin, condensed and resembling cartilage, while those in left contained a thin brownish purulent fluid, and had thick, soft, lacerable walls, very uneven and ragged on the under surface. Heart large, soft, and dilated, valves healthy. Liver and kidneys congested. Small intestines free from glandular disease? Large intestines showing superficial ulcerations and tumid solitary glands, some being filled with hard greyish tubercle, and having irregular wide orifices.

Remarks.—The record of this man's primary illness is wanting, and his history is limited to the six months he was under our observation. He had been invalided with phthisis, and was admitted here as in the last stage of that disease. The phenomena noted were progressive destruction of tissue in the apices, active congestions relieved by hæmoptysis, finally acute congestion and inflammation of remaining lung tissue, and shortly before death, diarrhœa.

The lesions were large, lined cavities in the apices, without scattered tubercular deposits, the posterior two-thirds of the right lung congested and loaded with red serum, the left lung being in the same state with the cavities at the apices more recent and the cut small bronchial tubes exuding everywhere a thick yellowish pus. The anterior parts of both lungs being emphysematous, and the pleuræ firmly adherent generally.

Although no tubercular growth remained in the lungs, yet the follicular glands of the colon had in them the deposit usually termed tubercular, and ulceration had commenced to admit of its expulsion; we must therefore conclude that the man was of a tubercular diathesis, and we may conceive that what there had been of tubercular deposit in the lungs had lain within the contour of the great cavities formed by the extensive inflammatory action that had evidently had a long existence, and had proved fatal.

Phthisis consequent on yellow fever, tubercles, vomicæ, and old pleurical adhesions with emphysema; dilated right side of heart; incipient degeneration of the mitral valve.

P. D., æt. 32 at death, on the 4th of December 1866, after being seven months in hospital.

He had had yellow fever in 1863 in the West Indies. His convalescence was imperfect, and four months later he was in Jamaica hospital with "a severe cough and a spitting of blood." He was invalided thence, and spent several months with his family in Ireland, but not getting better, he came to London, where he

was

was an inmate of three hospitals, including that for consumption. On admission here he was emaciated; he had clubbed nails, dilated pupils, short breathing, frequent pulse and night sweats, with signs of cavities at apices. His decline was gradual, without hæmoptysis, marked by profuse sweats and expectoration. He died from extreme exhaustion.

Inspection made by Assistant-surgeon D. B. Thomas. *Autopsy.*—The pleuræ were thickened, and coherent throughout. The least altered portions of the lungs were the anterior surfaces, especially of the upper lobes, which were emphysematous; the right lower lobe was also emphysematous above, but red-serum loaded, tough, elastic, dark red, buoyant and non-crepitant below, while the left lower lobe was studded anteriorly with firm grey granulations, some of which were calcified, and readily enucleated with the point of the knife. The apices and posterior surfaces of the upper lobes were infiltrated with gray tubercular matter, in small masses of the size of a split pea, some of which were firm and dense, and others soft and pultaceous. In the upper lobes there were, in the left three, and in the right two, cavities of the size of walnuts, having dense fibrous linings, and filled with thick dirty-yellow adhesive purulent fluid.

The heart was of pale yellow colour, of about the average weight, the cavities relaxed, the tricuspid orifice very wide, its valves thin, the mitral valves slightly atheromatous. Spleen, enlarged. Liver and kidneys without tissue-changes. Intestines and absorbent glands unaffected.

Remarks.—D.'s lung-disease dates from the middle of 1863, three and a half years before death. It originated in a severe attack of tropical fever, in which alterations of blood crasis and stases of blood are ordinary phenomena, from which, however, the convalescence once commenced is usually perfect, there being no grave sequelæ except now and then those of pyæmic character.

In this instance, the lungs did not become relieved of their hyperæmia with static congestion of the posterior and dependent portions, to compensate for which the anterior portions became emphysematous, increasing their aërating surface, while the right cavities of the heart, striving to propel the current of blood through the pulmonary capillaries, became dilated and perhaps hypertrophied, and the support of the tricuspid valves being lost, the inferior caval stream was greatly retarded in the abdominal viscera, so that they were passively congested. In this way the nutritive as well as the depurative functions were very ill-performed in the stage of convalescence from a fever which had greatly reduced the vitality of the tissues and of the blood itself.

Without more precise information of his condition when sent to Jamaica hospital beyond that he had "severe cough and spitting of blood," or of what has happened since then, it is impossible now to afford a connected history of his disease from recorded observations; but the disease wrote its own history in the changes it effected in the lungs, and regarding these it must be remembered that the lungs alone were the site of morbid deposits. In the first place, there had

App. No. 5. been extensive effusion of organisable lymph over the surface of the pleuræ firmly agglutinating them. In the lung itself, at the posterior part of the upper lobes, and in the anterior part of the left lower lobe, there had been deposit, which, in the latter situation, had become cretified, or so indurated that it was enucleable from its seat in the air-vesicles; while in the former, the deposit had become firm and dense in part, tending towards similar conditions, and in part soft and pultaceous or degenerating; and in the portion thus affected, "cavities had formed filled with a thick dirty-yellow adhesive purulent fluid, having dense fibrous linings," or, in other words, abscesses bounded by organised lymph. To my mind these alterations convey the belief that all this may have resulted from a slow inflammatory process, without necessarily any strumous or tuberculous diathesis; in fact, from a chronic pleuro-pneumonia, of which the origin lay in the blood-loaded capillaries of the lung during the yellow fever. The absence of other tuberculous growth seems to me to confirm the evidence derived from the lung.

In yellow fever there is an almost pathognomonic blood stasis in the lung, in common with other viscera, but hæmorrhage from the air passages is comparatively rare, there being a greater tendency to effusion of bloody serum into the pleural sacs. It is easy to conceive inflammatory action being set up in an organ thus affected, and that changes begun during fever received an impetus in the stage of convalescence. From the hæmoptysis that occurred soon after, it is clear that the capillary circulation was obstructed or checked in some way, and the conditions of the previous disease rendered the dependent portions of the lungs most liable to that state.

The generally emphysematous condition of the anterior surfaces, and the generally changed state of the posterior surfaces and lower lobes found on inspection, showed that where blood stasis existed in the fever, the destructive changes of inflammation progressed afterwards, implicating the investing pleura at an early date.

The seats of deposit corresponded also to the same directing causes. In the upper lobes it was confined to the posterior aspects, while the anterior were emphysematous, and one inferior lobe presented it undergoing obsolescence, not retrograding as in the upper lobes, while the other lower lobe presented only the changes induced by a long-continued inactive congestion, being of dark-red colour, tough, and elastic, non-crepitant but buoyant, and loaded with reddish serum; this condition of the inferior lobes bearing the impress of pneumonic as distinguishable from the changes of tubercular disease.

Phthisis of very old standing. Tubercles and vomicæ. Extensive old pleuritic adhesions, and recent pleuritic effusion of unorganisable lymph, ulcerated larynx, ulcerated intestinal glands. Dilated right side of heart. Fatty enlarged liver. Enlarged spleen. Fatty kidneys.

S. P., 40 at death, marine of eight years' service, was first admitted in November 1860. He was then greatly emaciated; he had harassing cough, with scanty frothy expectoration, pulse 104, weak and jerking. There were dulness on percussion, and

and hyperæsthesia below the right clavicle, with sibilant râles and bronchophony, which were attributed to tubercular consolidation of subjacent lung with pleurisy. He had glandular abscess in the groin, which healed, and tapeworm, which was expelled.

Under treatment he steadily improved, gaining weight. In June 1861 he suffered an attack of hæmoptysis, which did not reduce him, and he again progressed well. In July he was sent to a helpless ward, having casual treatment only. In January 1866, after five and a-half years' absence, he was again admitted to the infirmary. He was then emaciated, and had shortness of breath, night sweats, wide pupils, and gave the physical signs of vomicæ in the right apex. In May he had hæmorrhage per anum, to which he said he had long been subject annually at the same season, and he soon after passed a "lumbricus teres." He sank into extreme emaciation, with breathlessness and whispering voice, suffering severe fits of coughing, the sputum being of very offensive pus; and he had jaundice, and œdema of the feet. He died on 2nd of September 1866, nearly six years after his first admission to the hospital.

Inspection made by Assistant-surgeon D. B. Thomas. — The pleuræ were everywhere coherent, thickened, and opaque, and lined in their lower third with a thick, yellow fatty-looking layer.

Both "sacculi laryngis" and the cricoid cartilage were ulcerated, the mucous surface of the trachea was of bright red colour, and that of the bronchi of livid hue, and the bronchi contained greenish yellow viscid matter. The lungs were infiltrated in their upper two-thirds with soft yellow tubercle, the pulmonary substance being of a dark grey colour, firm but lacerable, non-crepitant, and non-buoyant; the lower third was of a dark red colour, firm and elastic, buoyant, faintly crepitant, containing a little reddish serum on the right side, and loaded with a deep yellow bilious fluid on the left side. In the left apex there were cavities of walnut size, containing grey turbid fluid, and separated by thin walls of condensed airless lung-tissue. In the right apex two empty vomicæ, the upper being of the size of a goose-egg and intersected by trabeculæ; it was very superficial, while the lower and lesser was seated deeply amid condensed lung-tissue. The heart was white-patched over the right ventricle; the valves were healthy, but the right auriculo-ventricular orifice was widely dilated. The liver was large, and, like the kidneys, it was in a state of fatty degeneration. The spleen was enlarged. The lower third of ileum and the colon were ulcerated in patches, the ulcers in the former being small, sharp cut, and circular, with thick raised edges and smooth even surface, and those in the latter, larger, with thin irregular borders and a rough uneven surface. The mesenteric glands were moderately enlarged and congested.

Remarks.—History of disease unknown previous to admission six years before death, further than that he had been invalided from the Royal Marines on account of pulmonary disease. His disease was pronounced to be phthisis on his first admisson to this hospital, where he remained six years under observation. In addition to consolidated lung at the apex with pleural adhesion, he then had external struma

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and tapeworm. As soon as this parasite was expelled, nutrition improved, and he gained much flesh, but from the appearance of lumbricus subsequently, and the frequent occurrence of diarrhœa, with occasional melæna, it may be stated that intestinal disorder was rarely if ever absent. The post-mortem condition of the ileum and large intestine (ulcerated follicular disease, with enlarged mesenteric glands) proved dysentery or tuberculosis of a chronic character, dating from at least the commencement of this history in 1860.

Notwithstanding the general improvement in his strength, and his gain in weight in 1861, the pulmonary disease was progressive, as indicated by hæmoptysis in June, but after that a period of inactivity set in and lasted indefinitely. When next recorded, after four years and a half, his state was a complicated one. Great ravages were completed on the respiratory organs and on the intestinal absorbent system, and the liver and kidneys had partaken of the mal-nutrition, and become fatty, the liver unable to perform its functions perfectly, so that the greatly disabled lungs were called on for increased functional effort, the result of which was stasis of the blood propelled by a dilated right ventricle having no auriculo-ventricular partition, and thus fatal inflammatory action was set up in the bases of the lungs, being the only untuberculosed portions. The autopsy presented two very distinct epochs of inflammation of the respiratory organs; the first, marked by old, firm, and uniform adhesions, and a generally thickened opaque condition of the pleura, was of very ancient date; the second, marked by bright red colour of the bronchial lining, by dark red, faintly crepitant injection of the lower thirds of both lungs, and by a thick, yellow, fatty looking layer on the pleura covering these last portions was recent, and the immediate precursor of death. The condition of the walls and parts surrounding the vomicæ showed forth their antiquity and the great extent of the effort at repair at their date, probably in the fifth year before the fatal result. No grey miliary tubercle was found anywhere, the yellow infiltrated variety existed alone and crowded the upper two-thirds of both lungs.

The cases of G., D., and P. present the ordinary characteristics of phthisical disease found among those whose position in life does not admit of protracted treatment and nursing in the early stages. "Neglected catarrhs and pains in the chest" are the most frequently assigned cause of the aggravated condition that has at last compelled the victim to seek admission, unable any longer to work for his maintenance; but on retracing the doleful history, there is generally found in the background some prominent morbid event, such as "spitting of blood," or "an attack of inflammation on the lungs," that had first brought the man under the doctor's hands. This history generally offers its salient points, indicating how stages of renewed deposit, and of inflammatory action, and of partial cure, are interwoven throughout.

From what I have seen in our foreign hospitals and at home, I consider that the cases here described simply portray the characters of disease and the ordinary career of men invalided from the Royal Navy and Marines, as "unserviceable from phthisis." The annual returns of invalidings show clearly that a large proportion, varying at different stations, is of this nature, and it is easy of belief that

that men exposed to the vicissitudes of the seaman's life must be unusually liable to the accession of pulmonary disease. The anatomical results are those of the different stages of pleuro-pneumonia, as in G., or of mixed tuberculosis and pleuro-pneumonia, as in D. and P. The majority of the autopsies in lung diseases have but strengthened this view. In the fifteen cases under fifty years of age there were found extensive lesions by pleurisy in all; in only one case both lower lobes were free from it, and in two cases only one lower lobe possessed the same immunity, but the upper parts were affected in all; in six instances pus oozed out copiously from the finer bronchi in transverse sections. These morbid changes lead to the inference that pleuro-pneumonia is a very efficient factor in the mortality from phthisical disease as we find it developed among our active forces of seamen and marines. The results of hospital treatment are a marked prolongation of life, by the prevention and the timely treatment of inflammatory complications.

The preceding cases have been cited to show in what manner the course of tuberculosis is varied and hastened by inflammatory action, so that, in many instances, it may be a matter of doubt whether the anatomical products are not in great part, if not altogether, due to the latter morbid action independently of the tubercular dyscrasy. The pleura and the pulmonary vesicular tissue are constantly thus affected, and it commonly enough occurs that an attack of peritonitis based on tubercular deposit will prove fatal in phthisis; but it is less generally understood that, in adults as in infancy, tubercle in the meninges of the brain will cause sthenic acute meningitis, or asthenic sub-acute meningitis, and also hemiplegia dependent on degeneration of the substance of a hemisphere adjacent to tubercles in the meninges.

The case next to be narrated has two aspects, either of which will serve to corroborate the teaching of the previous cases as to the proclivity to inflammatory complications in tuberculosis. The patient died of acute meningitis that supervened on acute pleurisy where tubercular deposit already existed, and the pleuritic lesions were perfected before the cerebral commenced.

Pulmonary tuberculosis. Pleurisy ending in lymph-exudation and pneumo thorax. Acute meningitis of sthenic type terminating life by exudation of lymph and serum.

J. L., æt. 28, out-pensioner, a steady, temperate man, was invalided from the Royal Marines, in June 1862 for epilepsy, and since then had been a labourer, suffering rarely from "fits."

In January 1866 he was laid up with catarrh and hæmoptysis with night sweats, and was unable to work afterwards. On the 24th of April he was admitted, as a case of urgent necessity, having suffered through a week the symptoms of acute pleurisy. He then had pyrexia, pulse 108, respiration 56. Extreme dyspnœa, hacking cough, muco-purulent sputum, broken sleep and night sweats. It was found that pneumo-thorax existed on the right side, and that

App. No. 5. there was consolidation of the apex of the left lung. He improved so far that on the 22nd of May it was noted, "Strength greatly improved, sleeps pretty well, little dyspnœa, less sputum which is free from blood; he is now able to lie on either side." At this time the pulse varied from 88 to 104 on different days, and the respirations had fallen to 32 in the minute.

After this the history of the case became almost entirely that of cerebral disturbance, which completed a fatal course in 27 days, to be afterwards referred to.

Inspection, made by Assistant Surgeon D. B. Thomas.—The thoracic lesions were as follows:

"Right pleura containing some reddish turbid fluid was adherent at apex, and a very hard dense band about ¾ths. of an inch broad attached the middle lobe at its outer aspect to the thoracic wall. The right lung was collapsed and weighed only 14 oz. The inferior surface of the lower lobe was coated with a loosely connected, thick, yellow, fatty, layer of lymph, and the corresponding surface of the diaphragm was similarly coated with a rough, greyish layer. No bronchial opening into pleura was found; if it existed it must have been under the broad lymph band that attached the middle lobe to the wall. A few very small grey tubercles were scattered through the upper lobe, in the centre of which there was a cavity of the size of a pigeon's egg perfectly empty, and having red, faintly crepitant and buoyant walls. The pulmonary tissue was generally of a very dark colour, dry, spongy, elastic, crepitating indistinctly but floating in water.

Left pleura free throughout; lung weighing 21 ounces, of light grey colour, spongy, elastic, crepitant, and buoyant, a small sprinkling of grey tubercles in the upper lobe, emphysema of the anterior border. In the abdominal viscera there was much congestion; liver of deep blackish-brown colour, of natural firmness and odor; gall-bladder full of black bile; spleen of bluish-black colour.

Kidneys dark mottled throughout, soft and friable, the capsules easily detached.

The whole history of this lung disease lies in the course of five-and-a-half months, commencing in catarrh, followed by hæmoptysis—indicating tubercular deposit, with, very probably, a general capillary stasis of the right lung, which culminated in pleurisy; lymph and reddish turbid fluid were effused, and pneumo-thorax was established.

The inflammatory lesions were confined to the right lung, although the left lung also had grey tubercles in its upper lobe; from which it may be inferred that tuberculous deposit preceded inflammatory action that ran its course on the pleura without any solidification of the parenchyma of the right lung. The only cavity lay in the tuberculous upper lobe, but it did not bear any of the tuberculous-vomica characters, nor of those of pneumonic abscesses, seeming rather a laceration by mechanical force or pressure on a congested, soft, lacerable part of the pulmonary tissue, caused in its removal. A series of morbid changes is in this instance clearly defined; grey miliary tuberculous deposit, catarrhal irritation of bronchial surface, hæmoptoic

hæmoptoic infarctus of parenchyma with blood effusion into the air cells, emphysema of the opposite lung, pleuritic inflammation and its products, which, although very extensive, did not lead directly to a death issue.

So far this case is of the highest importance in confirmation of what the former cases taught of the necessity for inflammatory action to complete the mischief which tuberculosis has commenced. It rarely happens to us, to have as here, so early an opportunity of witnessing this complication, but once possessed, it affords conclusive evidence that sets further questioning at rest.

The pleuritic exudation was unorganisable; its analogies or relations to tubercular deposit are as yet unspecified, but they may be closely allied; and it is worthy of notice, that when the inflammatory impetus was checked, or had ceased to extend in the respiratory organs, the pia mater, or vascular meninges of the brain took on, as if by metastasis, an equally acute inflammatory action that produced similar results, which have now to be taken into consideration.

The meningeal features of this case are equally important with the pulmonary, inasmuch as the symptoms and the morbid products differ materially from those observed in the case of F. L. (next to follow this), which may be accepted as a typical case of meningeal tuberculosis in its most frequent form in childhood.

It was stated that epilepsy was the disease for which J. L. was invalided from the Royal Marines at 24 years of age, three-and-a-half years previous to the accession of the disease that ended fatally. The recurrence of these attacks became less frequent, and the date of the last could not be assigned, but it may not be beyond the question to imagine that the state of the vaso-motor nerves within the cranium, as influencing and influenced by the disorders of the cerebral circulation that attend on epilepsy, may have influenced the determination of the later inflammatory action in the pia-mater.

After a severe attack of pleurisy, based on tuberculosis, which seemed to undergo some change towards recovery, it was noticed that the pulse had diurnal fluctuations in its frequency. On the 28th of May it was noted to have risen from 88 to 104, with severe frontal headache and loss of appetite. This may be taken as the starting point of the cerebral affection that ended fatally at midnight, 22nd—23rd June, or in 26 days. Of this period it may be said that 14 days was the term of irritation and of inflammatory hyperæmia that appeared to decline from the 10th to the 14th day, and then to light up afresh into acute inflammatory action, which in another five days caused fatal lesions. On the 20th day the symptoms of pressure were established from increasing serous effusion into the lateral ventricles; and, the inflammatory excitement continuing, convulsions from the 22nd to the 24th day, gave place to entire paralysis of the brain on the 25th, and death on the 26th day.

The stages of this man's disease were well defined by the symptoms; thus, in the stage of vascular excitement, there were severe frontal headache at night, mitigated in the morning, sleeplessness

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and evening incoherence, with furred tongue, bitter nauseous taste, anorexia, vomiting of food mixed with bile, constipation. The pulse and respirations varied thus on alternate days:—

June 1st.	Pulse	-	80;	Respirations	-	-	28.
„ 2nd.	„	-	56;	„	-	-	36.
„ 3rd.	„	-	80;	„	-	-	28.
„ 4th.	„	-	68;	„	-	-	32.

This oscillation of these vital phenomena raised suspicion of latent ague, as he had been working in a marshy district. From the 5th to the 10th the pulse remained between 80 and 85; he seemed improving, but was occasionally irrational and slow of comprehension, and vomited at intervals. The stage of inflammation, from the 14th to the 19th day, was marked by cessation of vomiting, by sudden rise of the pulse to 110, and fall of respirations to 28. In the day time he was irrational, but brought to perfect consciousness by addressing him; the pupils began to dilate, but vision and sensitiveness to light were scarcely impaired. On the evening of the 15th day he became furiously delirious and continued so for four hours, until after midnight, the paroxysms being repeated on the following night. After that he was generally delirious, without any paroxysms, seeing spectra, muttering, frowning with a wild expression of the eyes. During this time the digestive tone and the alvine and urinary excretions improved. Throughout the eighteenth night he had involuntary purging, which caused much exhaustion; and although checked in its frequency, yet he did not gain control, and both fœces and urine were passed incontinently from that time, the organic and excito-motor force remaining after the cerebral power was lost.

This led on the next stage, indicating cerebral pressure, with lingering inflammatory excitement. On the following morning, 19th day, the eyeballs no longer acted consentaneously, co-ordinating power failed, the eyes were steadily fixed towards the right, and there was irregular and frequent winking of the lids. He lost all articulating power, but when spoken to, showed much emotional excitability of the lachrymal apparatus with peevish irritability; 21st day he had difficulty of swallowing, and chronic spasms of the facial and orbital muscles, the right eye wildly staring, while the left remained firmly closed, both being shut in the intervals. 22nd day, still capable of regarding when spoken to; attempted to get out of bed. Dysphagia. At night he had four attacks of general convulsions, with threatening apnæa, as if the rima glottidis were involved, and the mouth was firmly drawn to the left side. In the intervals the pulse was 110, feeble, respiration 40, no stertor, the pupils wide and insensible, amaurosis, coma. 23rd day, convulsive attacks became less frequent, and appeared to be hemiphlegic, or stronger on the left side, and the tongue was frequently bitten, right eye reddened and dry, pulse 104, occasionally intermitting; 24th, signs of general paralysis of brain and excito-motor system, dorsal decubitus, and paralysis of detrusors; 25th, rapid pulse, moaning respiration, clammy sweatings, offensive urine; death closing the scene soon after midnight.

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Inspection of Contents of Cranium.

Dura-mater normal, and detaching easily from the calvarium; arachnoid over hemispheres rendered opaque, in patches, by semi-solid lymph effused into the sub-arachnoidal space; pia-mater congested throughout; cerebral convolutions flattened. At the base the arachnoid was thin and transparent, but there was much injection of the pia-mater there, and on it, in the anterior half of the interpeduncular space, there was an effusion of soft yellow lymph that concealed the tuber cinereum, optic commissure, and posterior third of the optic nerves, and extended forward into the commencement of the longitudinal fissure, and laterally throughout both fissures of Sylvius, anterior to which, on the right side, the pia-mater, investing the first two inches of the inferior and internal aspect of the hemisphere, and a superficial layer of the brain substance lying on the roof of the right orbit, were intensely congested, and had an exudation into their substance of a red granular lymph.

These were unmistakable evidences of acute and extensive inflammation of the pia-mater. The lymph effusion on the periphery of the brain lay either on its arachnoid or on its visceral surface, resembling closely that found on the pleura, being in both instances alike unorganisable. The great centre of this inflammation-product lay around the tuber cinereum and optic commissure, radiating far forward and laterally along the sulci in which pia-mater of loose texture enveloped the arterial branches. From this centre irritation extended, by contiguity, to the floor of the ventricles. There was no lymph deposit within the ventricles, and the pale condition of the choroid plexuses militated against the idea of continuous inflammatory action extending inwards from the pia-mater; but there was a great effusion of clear serum, resulting from irritation, which pressed expansively on the walls of the ventricles, flattening the cerebral convolutions against the unyielding surface of the cranium by centrifugal pressure. The cerebral convolutions were flattened, the intervening sulci being very narrow. Substance firm, and showing on section a normal quantity of red points. The lateral and third ventricles were filled with a clear, faintly yellow fluid; the septum lucidum was partly softened and broken down; the choroid plexuses were rather pale.

This important case illustrates well the highly inflammatory blood-crasis that exists in the early stages of tubercular phthisis of that sthenic form so common among vigorous men, like seamen and soldiers. It is a corollary to the foregoing cases that lingered on for months or years undergoing successive fresh deposits of tubercular and inflammatory products, whilst this was swept away in the early stage of pulmonary phthisis by inflammation of the vascular meninges of the brain. It is even conceivable that without that casualty Larkins would have recovered a certain degree of health, disabled in his right lung, and would have survived a shorter or longer period to undergo the same phthisical changes as in the former cases, but to end as surely in death.

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Tuberculosis, abdominal and pulmonary, and lastly meningeal, terminating by serous effusion into the ventricles, and softening of their walls by sub-acute inflammation.

F. L., æt. 54, marine pensioner, who had served twenty-two years, and had been an inmate seven and a half years, was of strumous diathesis in his youth, and had led an intemperate life. He came first under treatment in July 1861, for abscess that ended in fistula ani. Diarrhœa, established at that time, never ceased until within three months of his death. In June 1862 fistula formed on the other side of the rectum. Both sinuses were treated by ligatures, but ulcerous fissures remained until 1864, when his health had greatly improved. He suffered much subsequently from aching pains in the sacrum, buttocks and hips. About the time when his diarrhœa ceased, March 1866, strumous disease showed once more in a hard mass of the size of a hen's egg, at the right pelvic brim, and the femoral glands on that side were enlarged. Pulmonary symptoms became also well marked in severe cough, with muco-purulent expectoration and night perspirations, frequent pulse, and complete anorexia. Under treatment by Ol. morrhuæ, tonics and sedatives, the cough diminished, and he gained in flesh and strength. On the 5th of June a train of symptoms commenced that terminated fatally in fourteen days. The first symptoms were of disorder of the digestive organs, offensive halitus, yellowish white furred tongue, urine loaded with urates: and he had sleepless nights from aching pains in walls of chest and abdomen.

7th June, nausea, bilious vomiting.

June 12th.—Tongue cleaning, no cough, livid red subcutaneous spots on front of trunk unaffected by pressure; restless nights from intercostal muscular or nervous pains in chest.

13th.—Avoiding nourishment, expression of bewilderment, consciousness of mental wandering which is not noticeable by others.

14th.—Occasional hiccough, pulse, 80, full, but very soft, pains in side and back continue. Tongue cleaning.

15th.—Irrational in night, lies quietly on right side. His visage dull and expressionless. He dislikes being spoken to. Carphology. Excretions passed in bed. Pupils unequal, the right larger; both sensitive to light. Takes nourishment.

16th.—Purged violently by a small dose of calomel. Pulse 80. Temperature 96°, morning and evening.

17th.—Pulse 64, and very feeble, occasional puffing expirations, unconscious and unarousable. Can swallow.

18th.—Quiet

18th.—Quiet coma, pupils as above. Right eyelids more firmly closed than the left. Pulse 80. Swallows. Towards evening a pink flush on cheeks. App. No. 5.

19th.—Dorsal decubitus, loud snoring, and now and then blowing expirations. Pulse 76. Temperature, 94°. Right eyelids closed, the left eye staring. Pupils smaller than yesterday, right still the larger. Swallowing difficult. P.M., stertor and moaning, clammy perspirations. Death.

Inspection by Assistant Surgeon, D. B. Thomas. Emaciation. No traces of fistula ani. The pelvic and mesenteric glands tuberculous, some being soft, yellow and pultaceous. Spleen small, and greyish patched on capsule.

Liver, small, highly cirrhosed, firmly adherent to the diaphragm.

Kidneys undergoing yellow atrophy of cortex, surface smooth, and mottled by venous congestion.

Thorax. Pleuræ empty, the right generally and firmly adherent, almost cartilaginous at the apex, the left only partially, and that loosely, adherent. Lungs weighing, the right 21 and the left 16 oz. The right with scattered grey miliary tubercles throughout, and two larger yellow and softened masses in upper lobe, its apex occupied by a small vomica with very thick crepitant walls, and the lower third of inferior lobe in a state of hypostatic congestion.

The left lung had a general sprinkling of small grey tubercles throughout, but most in upper lobe, and in the anterior border of lower lobe, a defined congestion approaching to red hepatisation.

Heart small, superficially fatty, atheroma at the base of the aortic valves and root of aorta.

Dura-mater firmly adherent to cranium. Arachnoid dry, and transparent over hemispheres; a little fluid in the sub-arachnoid space at the base of brain. Over the interpeduncular space this membrane, elsewhere transparent, was of a greyish-white colour from tubercular deposit in its substance; tubercles were also very plentiful on the posterior surface of the medulla oblongata, but not extending into the fourth ventricle, and on the arachnoid lining the periosteum over the basilar process and body of the sphenoid. There was slight distension of the veins of the pia-mater. The convolutions were flattened, and the cerebral substance was firm; there were no red points but here and there a very delicate pink hue of sections. Internally, the lateral ventricles were greatly distended with clear serum. The septum lucidum and fornix soft and broken down (liquefaction), and on the under aspect of the anterio-half of the fornix there was a thin adherent layer of light grey exudation, having numerous rounded tubercular masses of the size of pins' heads imbedded in its free surface. The third ventricle distended and about one-half of the grey commissure also in a state of liquefaction.

The most ancient seat of tuberculosis was in the abdomen, and it seemed to have been aroused there in a strumous diathesis, by protracted irritation around the rectum. Diarrhœa and mal-nutrition were symptomatic of the state of the mesenteric glands.

App. No. 5. Irritation ceased there, and the evacuations became costive when the tuberculous conditions of the lung began to be active. These ran their course speedily, and although the apex of one lung bore the appearances of ancient disease, yet that had not attracted attention previously to the establishment of inflammatory actions, which ran on with destructive rapidity at first, and were then deceptively mitigated. The meningeal symptoms were the last, and were set up by the tubercular deposit which lay in the tissue of the arachnoid at the base of the brain and around the medulla oblongata externally, and under the fornix internally. The phenomena differed widely from those present in the case of J. L. in the absence of any sign of acute inflammation; a quiet condition of the mental disturbance prevailed throughout, and coma set in without convulsive action. The whole course was comprised within the limits of the signs of irritation and of pressure.

The grey deposit with tubercular granulations, causing roughness of the surface, slightly increased vascularity, of venous rather than of arterial characters, large effusion of serum into the central cavities of the brain, causing centrifugal pressure on the surface, and liquefaction of the walls of the cavities containing it, may be spoken of as the anatomical alterations of tissue that produced these symptoms. These are the alterations expected to occur, and found most frequently, in the cerebral organs of children when they die from hydrocephalus resulting from pure tubercular meningitis. The early signs of irritation of the sensorial centre were reflected irritations, or what are termed sympathetic symptoms; the digestive and excretory organs became disordered, and there were undefinable erratic pains about the chest and abdomen, probably reflected irritations from the pneumo-gastric as an incident nerve, or excited by the structural changes progressing at its origin; but whatever may have been the source of these pains, they were related to the sleepless condition that existed without pyrexia. He next showed slowness of understanding and of motion, and his face became expressionless. In the case of J. L., at the early stage of pressure, there was an apparent emotional consciousness after aphasia was confirmed; in the case of F. L. there was consciousness of mental wanderings that were not apparent to observers. Disinclination to swallow and hiccough next set in, soon followed by floccitation and involuntary evacuations, which probably indicated the graver implication of the medulla oblongata. The stage of irritation merged imperceptibly into that of insensibility, the pneumo-gastric irritation subsiding as the latter advanced. Although the first stage differed so widely in the cases of J. L. and F. L., exhibiting all the difference between constitutional excitement with violent delirium, and constitutional torpor with incoherence, yet the last stages, arising from pressure the result of these different conditions, were alike in both, amounting to total extinction of consciousness, sensibility, irritability, and voluntary power.

Tuberculosis, pulmonary and abdominal, with extensive inflammatory changes in the pleuræ and lungs. Tubercular deposit on the surface of a hemisphere, and not in the membranes at the base. Hemiplegia. App. No. 5.

M. C., æt. 25, Marine Pensioner, was admitted 1866, May 19th, with phthisis. He had been invalided from the Mediterranean station in October 1864, on account of headache and vertigo, and from the Royal Marines on the 20th March 1866, having had hæmoptysis. On admission he was in advanced phthisis, emaciated and hectic. He had a cavity in the right apex, and pleurisy of left side. Subsequently he had attacks of hæmoptysis, epistaxis and sub-acute pleurisy. In July he suffered from colitis, and in September from inguinal hernia.

From 6th to 14th of August, he was distressed by a heavy pain in the left eyeball, and throbbing in left parieto-occipital regions, with tenderness of the scalp. Apyrexia. These disappeared under treatment by the iodide of mercury pill.

18th August to 4th December, he suffered more or less from severe frontal headache and rejection of his meals, sometimes bilious vomiting. In November an abscess formed in the perinæum.

28th December, he had numbness of right extremities with partial loss of voluntary power in arm, but not in leg, and the tongue was protruded straight; frontal headache. P. 104.

1867, January 1st.—Complete motor-paralysis of both right extremities, but sensation much less impaired, and no startings, rigidity, or pains; paralysis of the right facial muscles, and tongue directed to left; pains in head complained of from orbit to occiput, varying in force.

January 3rd.—Can move right leg and forearm, symptoms having frequently fluctuated thus continued to do so, with slight pains in the palsied limbs occasionally.

17.—Involuntary movements of right arm by day and night; sensation of touch impaired, that of temperature unimpaired.

30th.—Sinking under phthisis and hemiplegia, his intellects remaining clear. February, 1st.—Death.

Inspection by Assistant Surgeon H. Hadlow.—Dura-mater, arachnoid, and pia-mater thickened and agglutinated over the left hemisphere in an irregular patch, one inch in diameter outwards from the great fissure just posterior to vertex, and extending downwards into that fissure. In the corresponding cerebral substance a mass of tubercle of greyish white or yellowish tint, of irregular shape, and of moderately firm consistence. This mass was adherent to the membranes by a yellowish white exudation, and was bounded internally or deeply, by a portion of congested but not softened brain of reddish grey tint. Base of brain and the ventricles were normal.

Chest.—Pleura everywhere adherent, and the lungs infiltrated with grey tubercle in different stages of softening, the left lung having scarcely any crepitant tissue remaining, and having several small vomicæ, some of them lined with false membrane.

App. No. 5.

Heart small, its mitral orifice very contracted.

Liver pale and fatty and small, somewhat cirrhosed.

Kidneys lobulated and mottled, pyramids injected, capsules easily stripped off.

Spleen appeared healthy.

Ileum in its lower part presented numerous small round ulcers, and some mesenteric glands were enlarged.

Microscopical examination by Mr. H. Hadlow:—"The cerebral tubercle showed ovoid and irregular corpuscles, granular matter, oil, and nerve tubes. The hepatic cells contained more than their proper portion of oil cells."

The duration of the cerebral symptoms with C. was much greater than it was with J. L. or F. L. From August to his death in February, he had only variations in degree of headache, or short intermissions free from it, and the irritability of stomach with bilious vomiting, set in soon after the headache; the hemiplegic symptoms were unusual, preceded through four-and-a-half months by throbbing pain over the seat of cerebral lesion, motor power was chiefly disturbed, sensation being never abolished, the palsied state varying so that one day he would be powerless, and the next day able to lift his foot from the bed, and to grasp with the hand. There were also involuntary movements and pains of the limbs as disease advanced. His intellect was unimpaired to the last. In these features, the case was very different from the others, and these were distinctive of the seat of deposit, in the substance of the hemisphere rather than in the meninges at the base, the signs being of unilateral and not of general nature, and free from the expansive pressure that leads to general paralysis, as well as from the symptoms indicating the irritation or paralysis of those parts deriving their force from cranial nerves.

The autopsy displayed the most extensive tubercular and widely spread consecutive inflammatory lesions in the lungs, tubercular deposit in intestinal follicular glands, besides the cerebral deposit which appeared to have been in the grey matter and between the convolutions, involving the tissue of the brain as well as its coverings in those inflammatory changes that surrounded it. The lesions were localised like a hæmorrhagic clot; and the symptoms resembled those that would have arisen from a clot in the same position, more than they did those of the two meningitic cases last related. Each of these three cases was typical of very different conditions under which tubercle may be deposited within the cranium, the symptoms being as characteristic as the lesions were different from each other, and they have interest from their occurrence in adults.

The diseases of old age classed phthisis, have, in the twelve cases inspected, presented three types.

1st. *The Pneumonic,* resembling the disease already described as that commonly met with among invalided seamen in the prime of life.

2nd. *The Bronchitic,* consecutive or prolonged bronchitis, senile catarrh

catarrh and humoral asthma, with consolidated deposit in lung in nuclear masses. App. No. 5.

3rd. *The Strumous*, which appears to be the result of a scrofulous pneumonia, that may affect only one lung.

I shall attempt to illustrate these types by series of cases showing the principal features that have appeared to me to warrant this distribution.

General Senile Atrophy of Viscera. Tubercles in Lungs.

R. R., æt. 84, seamen pensioner, resident in the hospital six years, was a healthy old man excepting the ordinary changes of old age up to the last two years. He was taken into the infirmary, being no longer able to take care of himself. He fell into a state of complete imbecility, unable to feed or to cleanse himself, or to express any ideas. He sank, utterly exhausted, on the 22nd May 1866.

There was found general visceral atrophy; the brain was small and compressed by internal and external serous effusion; the heart very small, aortic and mitral orifices patent, and the aorta atheromatous; liver very small, pale, fatty, and granular; kidneys tolerably healthy; spleen pulpy, and capsule thick and adherent; peritoneum slightly adherent, and lymph flakes attached, the results of old peritonitis.

There were no pleural adhesions, and both lungs were crepitant and buoyant; but grey miliary tubercles of sizes from millet to coriander seeds were found sprinkled throughout the apex and middle of the right, and less thickly so in the same portions of the left lung.

Tuberculosis of lungs. Yellow softening of the right parietal lobe of the brain.

J. S., æt. 80, inmate three years, and had had left hemiplegia one year before his admission.

He had well marked arterial degeneration, of many years' existence. On the 15th January 1866, he was taken into the infirmary for treatment of chronic cough, anorexia, and general debility. He fell off gradually, and died on the 21st July.

On inspection, the apoplectic seizure, hemiplegia, and subsequent nervous phenomena, were accounted for in the yellow gelatiniform degeneration of the upper surface and subjacent tissue of the right middle lobe, having at its centre a cavity of the size of an almond, lined with membrane and containing a reddish-brown fluid; the vessels at the base were very atheromatous. The mitral and aortic valves were thickened by atheroma, also the aorta itself. The liver was small and cirrhotic. The kidneys were in a state of fatty degeneration.

Both lungs were slightly adherent at the apices, of natural colour, elastic and crepitant; the right weighed 21, and the left

App. No. 5. 26 ounces. On section, both apices were found studded with small grey tubercles, the left apex being most affected.

The cases of R. and S. exemplify the simple uncomplicated deposit of pulmonary tubercle. The post-mortems were fully reported by Assistant Surgeon J. A. Middleton, M.D.

Pulmonary tubercles and collapse; pleuritic effusion; cystic atrophy of kidneys; valvular disease.

W. S., æt. 73, seaman, inmate ten years.

He was admitted to the infirmary on the 30th of May 1866, having constant cough increased at night, dyspnœa, muco-purulent sputum, shifting pains in the chest, and the physical signs of consolidation, with adhesion at the right apex. On the 24th July his symptoms became worse, cough more severe, hurried breathing, sputum profuse, white and frothy, pulse accelerated, and tongue dry brown. The expectoration decreased and almost ceased altogether, while his debility increased, and the constitutional disturbance became typhoid, until he expired on the 1st of August.

Inspection by Assistant Surgeon D. B. Thomas.—Body greatly emaciated. Heart flabby, white-patched anteriorly, the tricuspid orifice widely dilated, its valves thickened, and the mitral and aortic valves thickened and incompetent. Liver congested in its hepatic venous system. Bile yellow. Kidneys in fibrous and cystic degeneration. Lungs weighing, right forty, and left seventeen ounces. Right lung adherent at apex only, the upper lobe stuffed with grey miliary tubercles, its apex condensed, puckered, occupied by two white pultaceous masses, the posterior surface bright red, non-crepitant but buoyant, exuding on section a reddish frothy serum; elsewhere it was dense and firm, in some parts almost cartilaginous and sinking in water. The middle lobe was highly emphysematous and of a light grey colour. The lower lobe was generally inelastic, very lacerable, loaded with serum, non-crepitant, but retaining buoyancy. Left lung generally collapsed, its upper half airless, and containing a few very small crude tubercles; the remainder dry, elastic, buoyant and faintly crepitant, being compressed by a dark red turbid fluid that filled what remained of the pleural sac. The pleuræ were generally adherent above, but coated in the lower third with a thick yellow fatty looking layer, the visceral surface being very thick and tough, and of almost leathery consistence.

This case at seventy-three years of age is closely like those of the early period of adult life, tubercular in their origin, and terminating by repeated, or by violent, inflammatory action, and in which the results of tuberculosis and of inflammation are found mingled after death.

As in the cases last related, the seat of tubercular deposit was in the upper lobes, and of the grey miliary character more or less thickly deposited, but inflammatory action was not aroused in them, while in this it was extensive and caused death speedily with symptoms of great nervous depression, added to those of embarrassed respiratory function caused by rapid pleuritic effusion.

The

The date of the grey miliary deposit is uncertain in all of these cases, but probably it was not very remote from the date of death. In the last case appearances favoured the opinion that the earliest morbid changes were of a bronchitic character, leaving the white pultaceous masses and the condensed puckered condition of the adjacent parenchyma at the apex of the right lung; the emphysema of the middle lobe, that exempted it entirely from the final inflammatory lesions, being of cotemporary origin. App. No. 5.

Unquestionable pneumonic lesions were found in the upper lobe of the right lung, in proximity to the principal tubercular deposit, where alone a real inflammatory condensation existed, the lower lobe not having gone beyond the stage of excessive hypostatic congestion.

In the left lung the inflammatory action was suspended at the first stage in the parenchyma, through the pressure of a rapid pleuritic effusion on the surface of the highly injected lung, which state may be inferred to have existed, from the dark red turbid condition of the fluid effused in the pleural cavity. Inflammation once set up in lung tissues disposed like these to tuberculosis, and maintained in a permanent condition of hypostasis through the greatly disabled power of the heart to propel through the capillary system of the lungs blood which is vitiated through renal degeneration, would be, of necessity, most rapid in its course, very soon surpassing the possibility of cure.

These cases prove that, at very advanced ages (and greater ages than these may be quoted) what is known as the grey miliary tubercle may be deposited, and that the ordinary sites—the apices of the lungs—are still selected for that morbid action. The two first cases prove that life is not necessarily shortened by the presence of the deposit simply, while the last case shows the great liability to inflammation and its destructive results in those aged cases to be not less than in more youthful and consequently more vigorous constitutions.. The first two died from the exhaustion of old age, consequent on degeneration of vital organs in the decay of nature, while the last sank under what would be termed in youth "galloping consumption," or more correctly hypostatic pleuro-pneumonia implanted on a tuberculous state of the lungs.

From this extreme rapidity of inflammatory changes occurring in senile phthisis, it happens that vomicæ are less frequently found than in younger persons, but the following cases are examples of that destruction of tissues at a somewhat earlier but still advanced age.

Tubercles and a vomica. Valves of left side of heart diseased. Kidneys atrophied and granular.

W. B., æt. 66, seaman, in-pensioner three years. He had suffered long from impetigo on his legs, and had not any troublesome chest symptoms.

On the 15th December 1865, after taking cold, there were suddenly signs of collapse, and those of active pulmonary congestion set in on rallying from it. He sank and expired on the 12th day from attack.

App. No. 5. *Inspection.*—Pleuræ very adherent on both sides. Lungs, softening tubercle scattered in the lower part of right lung, and in the upper part of the left lung; a cavity of the size of a small walnut in the apex of the right lung. Heart, old white patches anteriorly, the mitral valves opaque and thickened, and the orifice wide, aortic valves incompetent, from a cretaceous deposit in one of its segments, aorta atheromatous. Liver healthy. Kidneys small and granular. Autopsy performed and reported by Dr. H. N. Maclaurin, Assistant Surgeon.

Tubercles and vomicæ; valves of left side of heart diseased; kidneys atrophied and cirrhosed.

H. N., æt. 65, seaman, in-pensioner fourteen months, was a good old man-of-war's man of forty-six years' service, and consequently must have had generally good health until at least sixty years of age.

1st September 1864, he was admitted, having an ulcer on his leg and phthisical symptoms and signs. The lung symptoms progressed; he suffered from cough and pains in chest, and he had a quick frequent pulse and anorexia. In September 1865, he had diarrhœa, with vomiting and tormina; in October, he became suddenly worse, he was prostrated, and distressed by hiccough, and his sputum became scanty. He died on the 1st of November.

Inspection.—Pleuræ, the left was adherent at the apex of lung, and it contained a little serum in the sac. Lungs, the left smaller than the right, and its upper lobe bound down by adhesions, the whole lung infiltrated with tubercular deposit, in which there were cavities in the upper parts; the right was studded in its upper third with tubercles, and posteriorly there was in the deposit a cavity of almond size. The bronchi exuded much serosity on section.

Heart small, pale, and flabby; its mitral and aortic valves were diseased; mitral orifice widened.

Liver healthy; kidneys atrophied to two and two and a-half ounces in weight, lobulated, and the cortical secreting portion very thin. Peritoneum slightly adherent and free from adipose tissue.

Autopsy reported by Assistant Surgeon J. C. Grigg.

Tubercles and vomicæ; aortic valves much diseased; general arterial atheroma.

J. D., æt. 67, seaman, pensioner, 2½ years inmate, was a man of intemperate habits that induced frequent dyspeptic attacks.

On the 5th of July 1865, he was admitted to the infirmary, having cough, pain between shoulder blades, anorexia, and general debility. He obtained temporary relief, but it was found that he had extensive atheroma of arteries, as the radials were unusually rigid at his age, and a systolic murmur was heard at the base of the heart. He sank into a state of extreme weakness, and passed his evacuations involuntarily, and vibices and sugillations formed on his hands, wrists, and lower extremities under light pressure.

He

He died on the 15th of November. App. No. 5.

Inspection.—Body very much emaciated. Pleuræ slightly adherent on both sides. Lungs slightly atheromatous anteriorly. Tubercles from size of millet seeds to that of a large pea studded throughout both lungs, and at each apex there was a cavity, that in right apex was larger and sinuous.

Heart large, aortic valves thickened by atheroma, and almost entirely unyielding. Extensive atheroma throughout the arterial system. Abdominal viscera not notably changed from their normal conditions.

Inspection made and reported by Assistant Surgeon J. C. Grigg.

In this form of tuberculosis the possibility of its attaining a state of quiescence through the cretifying metamorphosis seems not limited by age. The following case of a man who lived to eighty-three, is instructive on this point. At what period of his life he had suffered from primary tuberculosis, and from pleuro-pneumonia, there is no record.

Tubercles in cretified state. Old pleural adhesions. Heart dilated on left side. Liver cirrhosed.

M. F., æt. 83, seaman, pensioner, inmate 22 years, was of very intemperate habits, which he attributed to his never having been right in his head since the receipt of an injury of the skull, involving a loss of fragments of the frontal bone, by falling from aloft in the year 1818. He had been very frequently in the infirmary, often from contusions and injuries, for fracture of ribs in 1845, and again in 1862, and repeatedly for vertiginous attacks, hæmorrhoids, and twice for fistula in ano. From December 1862 to May 1863, he was under treatment for pulmonary affection registered chronic bronchitis.

On the 14th July 1866, he was last admitted, very feeble, suffering erratic pains in the loins, especially over the right kidney. The urine was scanty and it became neutral with a little pus in it, and subsequently alkaline with mucus, evidently from a transient cystitis which underwent cure. He had pyrexia with brown tongue and feeble pulse, declined nutrients, and lastly stimulants, and died after a semi-comatose stage on the 14th of October.

Inspection.—The right lung so adherent to the walls that it could be removed only in sections. It was almost everywhere infiltrated with hardened masses of tubercle almost cretaceous in parts. The left lung had undergone similar changes, but of less degree, cartilaginous and cretaceous nodules being scattered throughout its substance, and there being some cicatrix-like puckerings at its apex.

The heart was large, and its mitral orifice was dilated, and there was some atheroma of the aorta.

Liver very small, thirty-two ounces in weight, very cirrhotic.

Spleen small, capsule thick and indurated.

Kidneys fairly healthy, but the cortex diminished.

App. No. 5. Autopsy reported by Assistant Surgeon J. C. Grigg.

This series of cases will afford a connected view of the course and changes in what is here termed pneumonic senile phthisis. The main points being tuberculous growth with possibility of its quiescence and obsolescence by cretefaction, with, on the other hand, the formation of vomicæ under a slow insidious lobular inflammatory action, or the very speedy destruction of life under the more acute and general assault of that malady.

The general atrophy of viscera from the degenerations of the arterial system that attend the downward course of nature's decay, must have very much to do in these pulmonary changes.

The extent of these degenerations is often a source of astonishment after death that has seemed to follow on a few days' illness only, when scarcely a sound organ remains in the body from the progressive decay of years.

The bronchitic type of senile phthisis has received some good illustrations which may next be examined.

Soft curdy tubercle in defined masses at apex; no cavities. Extensive cardiac and arterial disease. Cystic kidneys. Death by peritonitis and hæmastatic pneumonia.

J. L., æt. 82, in-pensioner twenty-three years. He was an inmate nine years before any illness brought him into the infirmary, and then it was anthrax. In 1855, and again in 1863, he had loss of power over his limbs, which he regained. Through several years he had suffered from senile catarrh, attended by disorder of digestion, and subject to periods of exacerbation. While under treatment during such a period he was attacked by peritonitis, to which he succumbed on the sixth day, dying on the 7th June 1866.

Inspection by Assistant Surgeon D. B. Thomas.—Emaciation, sunken right side of thorax; pleuræ, right closely adherent, inseparable at apex, left had slight adhesions at apex only; on both inferior lobes on the outer surface a thin firm adherent whitish membrane, a little dark brown clear fluid in both cavities. Lungs weighing, the right 16, the left 23 oz., both of dark grey colour externally, the right retracted to 1½ inches from the sternum, the left emphysematous overlapping pericardium; the substance of the right lung was black, spongy, elastic, buoyant and crepitant except at apex, which was stuffed with grayish curdaceous tubercles from size of millet seed to that of small nuts, no cavities, the left was dark but not black, elastic, except at extreme base which was very lacerable, both buoyant and crepitant, exuding much black serosity on section. Heart, white-patched on right ventricle, coronary arteries calcified, right valves normal, left cavities dilated, mitral and aortic valves incompetent and calcareous, ascending aorta in a state of calcareous degeneration. Liver of grey colour, soft, extremely lacerable, and small. Kidneys small, cirrhosed and cystic.

Peritoneum, both surfaces of a livid red colour, most intense in the right

right hypochondrium; no lymph, but much brownish yellow turbid fluid in the cavity.

L. during the last few years of life had senile catarrh, and throughout his last seven months he suffered from it in aggravated form, and from great embarrassment of the circulation. He died of supervening peritonitis. On inspection, the right apex of lungs was found stuffed with the soft curdy deposit in well-defined masses, vesicular tissue being destroyed, and all other parts of both lungs were in a state of low hypostatic inflammation, most advanced in the right lung, which was undergoing contraction of its tissues that would have ended in obsolescence of the lung (atalestasis). Both lungs had on the outer inferior surfaces lymph deposits resembling the harmless white patches found on both surfaces of the right ventricle. The heart valves and the great vessels were in an advanced stage of senile degeneration; the kidneys were disorganised by the same.

Death resulted from peritoneal inflammation, which commenced as a peri-hepatitis, that produced inflammation-changes in the tissue of the organ itself, and extended superficially over the entire peritoneal lining of the abdomen.

Senile bronchitic phthisis. Tubercle without cavities. Heart fairly healthy; commencing cystic degeneration of one kidney. Death by pleuro-pneumonia.

J. R., æt. 78, marine pensioner, inmate four months. He was sent to Greenwich on account of his infirmities, being an old sufferer from senile catarrh and attacks of bronchitis. During the prevalence of a sharp easterly wind he took catarrh, which ended in acute bronchitis marked by pyrexia, moist skin, pulse 96 bounding, cough, dyspnœa, and frothy sputum, and with these symptoms he was admitted into the infirmary on the 20th May 1866. On the following day he was much better, but next morning his breathing became very difficult, visage livid and anxious, pulse frequent, soft and full, tongue dry, whitish brown. He sank suddenly, and died at noon of 22nd May.

Inspection.—Moderate emaciation, and the right side of chest retracted; lungs filling the cavities, and not shrinking; no fluid in cavities; a few old adhesions at the apices of the lungs, the firmest at the right. Lungs weighing, right 29, and left 48 ounces. Both upper lobes contained tubercles without cavities; the left was sprinkled with small grey tubercles in various stages of softening, disintegration, and cretefaction, and in the extreme apex one as large as a hazel-nut was soft and pultaceous, the surrounding parenchyma being uncongested, but dense, contracted, and puckered; the right, upper, and middle lobes were studded with grey tubercles of the size of small shot much towards the surface, and very numerous at the apex, where alone they were undergoing metamorphosis. There were results of inflammatory action in all the tissues, of bronchitis in the right lung, where the bronchial tubes contained some viscid muco-pus, and their lining membrane was thickened, very vascular, and of a deep livid red colour; and of pleuro-pneumonia of

App. No. 5. the inferior lobe of the left lung, where drops of yellow pus exuded from the bronchi, and turbid reddish serum from the incised parenchyma, which at the extreme base was in a state of red hepatisation, very lacerable, and neither crepitant nor buoyant, the upper part of the same lobe being highly congested hypostatically, and the whole outer surface coated with a thick layer of firm yellow lymph.

Pericardium and heart loaded with superficial fat, the walls and valves being normal, aorta atheromatous.

Liver tumid from hepatic venous congestion.

Kidneys, right healthy, left enlarged by increase of cortex; a fibrous cyst at its lower end.

Autopsy reported by Assistant Surgeon D. B. Thomas.

In Reynold's case there were less of cardiac and of renal alterations than are usually met with in senile phthisis; in fact the renal function must have been sufficiently performed, and the heart was fully competent to propel the blood. The long-standing bronchitis had choked up many small and some larger tubes, epecially in the left apex. Health declining; grey tubercles were deposited plentifully in both upper lobes, without time to undergo disintegration. An accidental catarrh induced inflammatory action remote from the seats of chronic disease in the lung, and brought on a fatal result within three days.

Senile bronchitic phthisis; a large fibrinous clot in a cavity; old pleurisy. Great disease of valves on left side of the heart. Fatty degeneration of the liver and kidneys.

S. H., æt. 71, an inmate ten months, having been previously afflicted with chest complaints, chronic cough with muco-purulent expectoration. He went through a winter at Greenwich favourably, but, on the 7th of July 1866, he had a severe attack of hæmoptysis that commenced during the night. On auscultating there was found consolidation at both apices. There were black clots from time to time in an otherwise florid expectoration, the breathing was hurried, pulse weak and accelerated, anorexia. The hæmorrhage ceased in a week. He complained of constant pain under the left scapula; and systolic aortic and mitral murmurs were detected. In the middle of August diarrhœa with febricula came on, and next day, at evening, profuse hæmoptysis returned, which blanched him, and his extremities retained coldness and lividity, and he grew more exhausted; and although the hæmorrhage had virtually ceased he expired on the 21st August.

Inspection by Assistant Surgeon D. B. Thomas.—Emaciation; pleuræ empty, the right adherent in upper third, the left closely adherent throughout, and inseparably so at the apex. Lungs weighed, the right 37, and left 51 oz.; the right was healthy in its lower lobe excepting emphysema; in the middle lobe there were small greyish isolated masses, and in the upper lobe a general infiltration of tubercle, some grey and firm, and other parts yellow, soft and pultaceous; the left lung had its apex enveloped in a hard yellowish white cartilaginous casing, about a third of an inch thick, and

and deep in its tissues there were several soft pultaceous masses to the size of hazel-nuts, surrounded by condensed indurated non-vesicular parenchyma, and a cavity of the size of a pigeon's egg filled with a blood-clot laminated like that of an aneurism; the remainder of the lobe was dark, lacerable, and less infiltrated with grey and yellow tubercle. The left lower lobe was highly congested hypostatically, and it had grey nodules of the size of peas scattered singly over the surface. The heart was pale and flaccid, and white-patched posteriorly; its right valves were healthy; the mitral and aortics in calcareous degeneration; the ascending aorta was atheromatous and dilated. App. No. 5.

Liver small and in fatty degeneration, bile yellow.

Kidneys; the right atrophied to 2½ ounces each, the cortex very narrow, and the pyramids nearly all obliterated; the left, weighing 4½ ounces, was in a less advanced degeneration. Spleen large, capsule thickened, and bearing a calcareous patch on the surface.

The originally bronchitic form of this man's disease was clear from the history; and the post-mortem view showed that it may have existed many years at the upper part of the left upper lobe, where the well-defined curdy masses were of the size of hazel-nuts, surrounded by condensed indurated airless tissue. The condition of the pleura investing it, a hard yellowish white cartilaginous casing about one-third of an inch thick, suggests a long-continued exudative action in the pleura in direct relationship to that which obliterated the air-cells and bronchial tubes, and the yellow infiltration was like a slowly degenerating product of chronic pneumonia. The great peculiarities of the case were the violent hæmoptysis that preceded death, and the changes at its source, described as "an apoplectic clot of the size of a pigeon's egg, circular in shape, consisting externally of a laminated decolorised febrine, and internally of dark red clot, exactly resembling that found in an aneurism undergoing cure." There were no sinuosities of the walls, and the most careful scrutiny failed to detect the orifice of an artery in the walls of the cavity, which resembled the others filled with curdy deposit, in all save its size and contents.

The heart and kidney degenerations were such as are commonly met with in senile phthisis. The fatty degeneration of the liver was that we find where the lung has become slowly incapable of performing its function, but the smallness of the organ indicated that the atrophic conditions of old age had been acting previously on the organ.

In this form of senile phthisis, where rounded masses of pultaceous deposit are found, especially in the upper lobes, with an elastic condensation of the parenchyma behind it, there has always been a long continued senile catarrh. It seems to be essentially a choking of the bronchial tubes of lobular degree, commencing next the pleural surface, and extending centrically, obliterating the air-cells behind it as it advances. It has its anatomical analogue in "pyo-nephrosis" where a similar soft putty-like concrete of disintegrated pus-cells fills up the pelvis of the kidney, and obliterates the secreting structure behind it. Neither of these changes lead directly to fatal results; in fact, both may be regarded as natural limits, cutting off, as it were, and rendering obsolete, parts that cannot have their due

App. No. 5. function restored to the mand, have become the source of a debilitating drain on the system. Death does not intervene where a kidney is thus obliterated, provided that the other is useful, nor where a very considerable part of the respiratory organs are choked up in this way, provided that freedom from further inflammatory action is secured. In the case of the lungs, however, it is probable that the senile changes in the heart and kidneys that usually accompany this change in the lung, are of a nature to render the so far weakened lung more liable to parenchymatous inflammation. There is a normal stasis of vitiated blood in the pulmonary capillaries, in which, from slighter causes, inflammatory action is more likely to arise, the hæmastatic condition being closely allied with the low forms of inflammatory action, and exudations to occur that undergo speedy disintegration. The course of senile bronchial phthisis would be very protracted indeed, were it not for the supervention of inflammatory action, or from the contemporary changes going on in other organs during the decay of the body. The cases of L, R, and H, illustrate well some of the casualties that old bronchitic persons are liable to, by falling into phthisis, or by the invasion of acuter forms of inflammatory action. In such cases the physician and the nurse can do much in aiding nature, by encouraging the torpid functions, and preventing exposure to injurious causes, remembering that in these cases the respiratory organs do not fall into destructive changes before the digestive and excretory organs have become enfeebled in their vital chemical, and the heart equally so in its mechanical, functions.

Another condition under which phthisis occurs in old age is that of disintegration of the products of inflammation of the lung, set up accidentally, or by temporary mal-nutrition, in strumous constitutions. As the scrofulous dyscrasia is not a common form of disease after adult age, so strumous phthisis is not then recognised as such, unless it be a complication in cases of caries of the cancellar structure of bones. This form of disease often counteracts the best intentions of operative surgery among the aged, and the probability of its insidious progress should ever be borne in mind, where the skill of the surgeon is about to exert itself, in order to obviate the certainty of disappointment to all concerned where this complication exists. The following cases afford examples of the strumous type of senile phthisis, which it is noticeable affected only one lung in either instance:—

Solidified lower lobe of one lung, with a cavity in it. Strumous caries of tarsal bones. Extensive old valvular disease, and dilatation of cardiac cavities.

T. Y., æt. 70, pensioner, inmate eight years, a temperate man. He had suffered in youth from scrofulous abscesses, of which he bore large cicatrices on the right side of his neck. In December 1863, after being an inmate five years, he came first under treatment for dysuria, depending on a permanent stricture, which was treated by dilatation. In June 1865 he was re-admitted, having cough, dyspnœa, and expectoration, with some œdema and deep tumour of right tarsus. He emaciated. The right side of chest was flatter and dull, with prolonged expiratory murmur. The signs

signs on left side were the same in less degree. The heart sounds were feeble, indistinct, without bruit. Abscesses formed about the outer surface of the tarsus, and gave exit to curdy pus, and carious bone was found at their bottom. He took cod-liver oil and chalybeate tonics, with opiates to relieve great pain at night, declining surgical interference. For change of air he paid a visit to friends in the north, and returned in better general health; but shortly after his return, fresh abscesses formed at the ankle, his cough became more distressing, sometimes with asthmatic dyspnœa. He fell away rapidly under complete anorexia, had drenching night sweats, and sleeplessness from pain in the foot; his breathing became more difficult, and on the 22nd of December 1866, the chest symptoms underwent aggravation, with intermission and irregularity of the pulse, and he died on the following day.

Autopsy reported by Assistant-surgeon H. Hadlow.—Lungs filling cavities, and emphysematous on anterior borders, weighing, left 23 oz., right 60 oz.; the left moderately emphysematous in its upper lobe, but otherwise healthy; the right, solidified in its entire inferior portion, solidified by (tuberculous ?) infiltration, which here and there showed signs of softening, and about its centre a ragged cavity of the size of a walnut, containing dark muco-pus. There were firm adhesions at the apex, and the lower lobe was thickened and covered with a layer of firm fibrine. There was no fluid in the pleural sac, but the pericardium contained a few ounces, with lymph fibrillæ attached to the external or free layer. Heart had fat and a little lymph on its surface, both auriculo ventriculars were dilated. Tricuspid valves thick, and fringed with fat-like fibrine; mitrals thickened and opaque; aortics also thickened.

Liver in state of venous congestion. Kidneys pale and smooth, not markedly altered in substance. The caries affected the front of the calcis, the entire cuboid, and the base of the two outer metatarsal bones, the cancellar structure breaking down readily under a probe.

The case of York, one of youthful scrofula, without pulmonary tuberculosis, but with pleuritic adhesions at the apex of the lung, corresponding to the cervical glandular disease, went on to nearly seventy years of age without manifesting any further signs of diathesis; he had old disease of left valve of the heart. On the advent of senile changes he began to suffer from chest complaints and disease of short bones. The osseous disease was of a truly strumous character and the pulmonary disease was the more remarkable under the circumstances, in not occupying the usual site of tubercle, nor affecting the lung which had suffered local pleurisy in youth. The seat of disease was in the inferior lobes of right lung; an extensive solid infiltration having a cavity at its centre; the investing pleura being covered with firm fibrine, and the sac not containing effused serum. The inflammatory nature of this disease could not be questioned, and no grey or miliary tubercle was found anywhere; it seemed nothing but the softening of a degenerated deposit the result of inflammation which, from its alliance with strumous disease, may, I think,

App. No. 5. think, be rightly termed a strumous or scrofulous pneumonia. This disease of lung and of bone would have caused death in a very short time; but it invaded more quickly, carrying off the enfeebled patient by pericarditis, with effusion that brought the heart's action to a close, before the disintegration of the degenerated pulmonary tissue had time to extinguish life by phthisis.

Caries of vertebræ and of crest of ilium. Tubercle and vomica in lung. Tubercle in a supra-renal capsule.

A. H., æt. 81, in-pensioner eighteen years, had been frequently under treatment for injuries received when intoxicated, and was in the infirmary the last two years and three months on account of contusion of the left hip and side. He was kept in bed for a time, but afterwards could walk with a stick. Six months after this accident an abscess formed below the right scapula. Subsequently, abscesses formed over the anterior superior spine of the left ilium, and over the sacrum and lumbar vertebræ. All these abscesses were connected with disease of bone—the middle dorsal vertebræ, and the crest of the left ilium. The sinuses healed and re-opened from time to time, to give exit to particles of carious bone. His radial arteries were rigid by atheromatous changes, and pulse irregular. There were no notable signs of pulmonary disease, and he seemed to sink into utter exhaustion from the drain set up. He died 23rd November 1866.

Autopsy reported by Dr. J. A. Middleton, Assistant-surgeon.—Emaciation. Chest, both pleural sacs empty. Pleuræ, right a few slight adhesions, left more adherent and thickened, especially near the apex. Lungs weighed, right 25 oz., and left 22 oz.; the right lung grey, emphysematous anteriorly, otherwise healthy; the left lung, dark red, dense, faintly crepitant, but buoyant, and exuding much reddish-brown serum on section. In the apex a cavity of the size of a filbert was found, containing purulent matter, and around its margins small masses of grey tubercle. The heart was large pale, mitral valve thickened, and its orifice dilated; aortic valves, and commencement of the aorta, somewhat atheromatous. Arteries of limbs atheromatous. Liver small, grooved by ribs; capsule adherent, taking with it some granules from the granulated surface; the acini were pale at circumference, and dark at centre. Right supra-renal capsule contained a mass of tubercle of the size of a small filbert. Kidneys, diminished in size; cystic, granular on stripping off the capsules, cortex much atrophied. Carious bone was found in connection with each sinus.

H. in spite of intemperate habits, and many accidents, lived in apparently good health for an old man, until at seventy-eight years of age he received contusions that compelled a rather long confinement in bed. These injuries set up diseased actions at two points of his osseous system, the crest of the ilium over which the main contusion lay, and the dorsal vertebræ near the seat of a flesh contusion. Suppuration followed, and under it he became exhausted in a remarkably slow manner. There were no marked symptoms of lung disease

disease. After death the only active visceral change found lay in the right lung, which weighed one-eighth less than the opposite sound organ, and consequently had very little deposit in it. At its apex was found a small cavity containing pus, surrounded by small isolated tubercular masses, the remainder of the lung being in a state of hypostatic congestion, and generally adherent to the wall of the thorax. An apparently tubercular deposit was found also in a supra-renal capsule. App. No. 5.

Thus, the immediate cause of death lay in the lung that had very rapidly become slightly tubercular in its upper lobe, and had then broken down into a vomica, which had not opened before death, the entire lung being highly congested. Previous to this his strength had been greatly reduced by the great drain from the carious bones, and he died at once, without time for the infiltration of much deposit in the lung, and its disintegration, as in the case of T. Y.

The short statements of the inspections made in the foregoing cases of phthisis have alluded to the diseases found in other organs than the lungs, and cases in which the brain or its membranes have been implicated, have been more fully detailed. At present it will exceed our space to enter into the other complications—those of the heart and abdominal viscera—further than to give a tabular view of such as have been noted after death, without entering on the description of their symptoms, stages, and appearances.

Morbid Alterations.	Number of Cases.	
	Under 55 Years, 15.	Above 65 Years, 12.
Intestines, large, ulcerated	4	—
„ small, ulcerated	3	—
Peritoneum, inflamed		1
Mesenteric glands, enlarged	3	—
Liver, highly congested	7	1
„ degeneration, fatty	6	1
„ atrophied, granular		5
„ „ cirrhosed	2	1
Kidneys, highly congested	2	—
„ degeneration fatty	7	4
„ atrophied cystic	3	4
„ „ cirrhosed	1	2

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The most obvious deductions are, that intestinal and mesenteric tuberculosis are very rare forms of deposit in senile phthisis, and that the highly active congestion and the fatty degeneration of the liver and kidney that are frequent at middle age are supplanted by atrophies later in life, but whether as consequent on, or as coincident with, phthisis, is still problematical.

The condition of the heart as the centre of circulation in relation to diseased states of the lungs, which represent one-half of the circulating system within a much smaller circuit than that of the aortic system, is one of considerable importance, especially as it is generally received that whatever causes venosity of the blood is unfavourable to tuberculosis of the lungs.

In the twenty-seven cases of all ages subsequent to perfect maturity, the following notations were made:

Cardiac Lesions.	Number of Cases.	
	Under 55 Years, 15.	Above 65 Years, 12.
No change	3	—
Pericardial effusion	2	1
Substance fatty	3	—
Surface fatty	-	1
„ white patched	2	3
Valves, healthy	7	1
„ diseased, aortic	1	9
„ „ mitral	5	10
„ „ tricuspid	2	3
„ „ pulmonary	—	—
Aur. ventr., orifice dilated, left	1	7
„ „ „ „ right	4	2
Atheroma of aorta	5	9
„ coronary arteries	-	1
Weight of heart, maximum, 17, minimum, 9 oz.		

In twenty-seven cases there were only three free from cardiac disease, chiefly valvular; under 55 years there were seven cases out of fifteen without valvular disease, but in twelve cases over 65 years only one case was free from it.

Dilatation, sometimes without disease of valves, occurred on the right side more frequently than on the left at the earlier period—

that

that is under 55 years of age, and more frequently on the left side than on the right, always with disease of valves after that age. App. No. 5.

In presenting these observations I have wished to show the different conditions of chronic lung disease met with in the practice of this hospital, illustrating them by cases of recent occurrence, still fresh in the memories of the medical officers. The concluding data of the correlative diseases in other organs than the lungs are interesting as far as they go, but the field of research is a wide one, and these few notations may serve to point the way for further observations.

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Appendix, No. 6.

REMARKS

ON

INSANITY IN THE ROYAL NAVY;

AND

AN ACCOUNT of the Arrangements in the ROYAL NAVAL LUNATIC ASYLUM, GREAT YARMOUTH, for the treatment of Officers, Marines, and Seamen;

ALSO

AN ANALYSIS of PATIENTS received in 1867, and a SUMMARY of PHYSICAL DISEASE for the same Year. By WILLIAM MACLEOD, M.D., Deputy Inspector General of Hospitals and Fleets, in charge of the Royal Naval Asylum, Great Yarmouth.

PREFATORY NOTICE.

IN the following remarks, I have endeavoured,

1st. To give an approximation to the number of insane patients in proportion to the number of officers and men voted during the last four years.

In prosecuting this subject further, it will be necessary to ascertain the actual number of seamen and marines who are on the pension lists, as well as all junior officers, including warrant and junior Engineer officers, whose names are not to be found in the Navy List, and the strength of these classes on the retired list.

I am under the impression that when these can all be brought forward, the number of insane patients given will be proportionately diminished. It will also be found that years of war and excitement send a greater number of patients to the asylum than years of peace; but whether this arises from causes peculiar to a state of war, or from the increased number of men employed in such times, remains to be examined into. It appears that the Marine Artillery sends more patients to the asylum, from the privates, than the other branches of that service. I am also under the impression that the non-continued service men find their way into the asylum in greater numbers than the continued service men. These subjects, however, require further observation.

2nd. A statement of the arrangements made for the treatment of all classes throughout the service in the Royal Naval Lunatic Asylum, Great Yarmouth.

3rd. An analysis of the cases received for treatment during the year

year 1867; with an explanation of the contents of the Tables (ten in number) recommended by the Commissioners in Lunacy to be added annually to Asylum Reports, in order that the increase or decrease of insanity may be tested. App. No. 6.

4th. A short explanatory statement, pointing to the fact that what we called mental diseases are as much physical as any other disease of the body; followed by a summary of the ordinary physical diseases.

5th. And finally, remarks are made on epilepsy, as met with in the Asylum, with cases.

It was my intention to extend my remarks to general paralysis and its treatment, not that I had anything new to state, but as I believe it to be a form of brain disease little known in the service afloat, although it forms the complaint of 12 per cent. of the permanent patients in this Asylum, I believe that a short account of its varied forms and phases would not be out of place. The question suggests itself, "Are the insane liable to diseases peculiar to themselves, or consequent on their brain affection? And to what extent, if any, do brain diseases indicating insanity arise from other physical disease in the system by a reflex action?" These are subjects which may be taken up as time and opportunity may be found.

Number in Asylum, Jan. 1867.

THERE remained in the Asylum on the 1st of January 1867, 170 patients, of whom thirty-three were officers, ninety-six seamen, forty-one marines. Their mental diseases may be classified as follows:—

How classified according to mental symptoms.

Acute mania	2
Passive mania	98
Periodic mania	10
Melancholia	15
Dementia	36
Imbecility	9
TOTAL	170

Average for the year.

Throughout the year there was an average of 173.

Increase of lunacy in England.

On referring to the Statistical Reports of Lunatic Asylums throughout England, it will be found that there has been an increase of lunatic patients during the last twenty years.

In the year 1847 the proportion of lunatic patients to the other population was one in 880; in 1857 it was one in 701; and in 1867 it was one in 494.

No means of examining so far back as 20 years.

It is not in my power at present to go so far back as twenty years to examine the proportion of lunatic patients in the naval service to the number of men employed; I can only examine back to 1864, and even then my conclusions must be an approximation, as I cannot arrive at the number of pensioners in the service for each year, from which class several of the patients in the asylum came; besides, no distinction has been made between seamen and marine pensioners, or civilians of the coast guard.

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Proportion of lunatic patients to the number of men employed in the Navy in 1864.

I find that in 1864, 71,950 men were voted for the service of that year, and that the number of patients in the asylum averaged 150 throughout the year, giving one lunatic patient to every 460 of the men employed.

During the same year thirty-two patients were admitted, giving one fresh admission for every 2,248 men employed.

1865.

In 1865 there were 69,750 men employed; in the asylum the average number of patients was 160½, giving a lunatic patient to every 434⅛ of the men employed; thirty-four patients were admitted during the year, giving one fresh entry out of every 2,051.

1866.

In 1866 there were 68,400 men employed; in the asylum the average number of patients was 163, giving one to every 420 of the men employed; during this year thirty-seven men were admitted, giving one fresh entry for the year out of every 1,849.

1867.

In the year 1867 there were 67,300 men voted; in the asylum the average number of patients was 173, giving one to every 389; during this year forty-one patients were admitted, giving a fresh entry for the year, out of every 1,641.

Steady increase.

There can be no doubt therefore that during the years 1864, 1865, 1866, and 1867, there has been a steady increase in the number of patients, although there has been a decrease in the number of men voted.

From officers and marines.

This increase has taken place amongst the officers and marines, there being—

In 1864 one lunatic to every		350	officers.
1865	,,	372	,,
1866	,,	262	,,
1867	,,	287	,,

There has been likewise an increase from the marines, as follows:—

In 1864 there was one lunatic to every		529	marines.
1865	,,	436	,,
1866	,,	400	,,
1867	,,	381	,,

The proportion among seamen actively employed:—

In 1864 one lunatic to every		648	seamen.
1865	,,	652	,,
1866	,,	638	,,
1867	,,	616	,,

Cause of increase not given; records incomplete.

The cause of this increase I am not prepared to explain, there being no facts before me to enable me to arrive at a satisfactory conclusion, and in very few of the cases is there any cause assigned for the illness of the patients, such as domestic troubles, intemperance, hurts received in the service, or hereditary taint.

Probable causes. The fact of there being a naval asylum is better known, and therefore seamen and ma-

It may be remarked that of late years it has become better known that the naval authorities support a separate establishment for the reception and treatment of lunatic patients, and a permanent residence for all incurable cases, of which there is a large proportion. Accordingly, when it is discovered in a County Asylum that there is a patient who has any claim on the naval service for support, the guardians, if possible, obtain permission from the Admiralty to have him transferred to this establishment.

The

The families and friends of the different grades of officers and men are also better informed regarding the privileges and comforts of this establishment.

rines are removed from other asylums to Yarmouth.

The naval service in all parts of the world is well provided with general hospitals on a large scale, and liberally managed, where provision is made for the treatment and support of all classes. When it is found that an officer or man has broken down from disease of the brain, and has given evidence of an unsound mind, he is removed from the foreign hospital or ship in which he may be, to one of the large home hospitals, where his case receives immediate consideration, and if found to require further treatment the requisite legal certificates of insanity are sent to the Admiralty, and the Director General of the Medical Department of the Navy decides on the propriety of admitting the patient into the Asylum at Yarmouth.

Naval Service well provided with hospitals.

Steps taken in the removal of a patient to Yarmouth.

An attendant from the asylum is sent to conduct the patient from whatever hospital he may be at, or if on half-pay one is sent to the home of the patient to attend on him during his journey; so that from the moment of his illness, if on active service, until he is received into the asylum, he is carefully looked after, and under medical observation, and everything is done for him which human foresight can effect. The patient has, moreover, the advantage of being received into an establishment where he is surrounded with officers and men of his own profession, and attended by medical officers who are well acquainted with all the peculiarities of the seaman, whether regarded from a physical or a moral point of view.

The care taken of patients.

It is no disparagement to other asylums to say that, without exception, officers and seamen who have come here from other establishments prefer being among their own brother officers and former shipmates, and are happier under the routine and discipline peculiar to the naval service.

Preference given by officers and men to Yarmouth Asylum.

After a patient is admitted he is treated according to the requirements of the case; being kept under observation night and day either in the officers' or seamen's sick ward (as the case may be) until the delusions, sayings, doings, and peculiarities of the patient are fully discovered and understood.

Treatment after admittance.

The officers are divided into four sections.

Officers are divided into four classes.

I. Superior officers in rank are allowed sitting rooms and sleeping apartments by themselves; receiving if possible the consideration of their rank, so far as this can be carried out with benefit to their ultimate recovery and safety.

II. There is a convalescent mess-room for ward-room and gun-room officers.

III. A general mess-room for ward-room and gun-room officers who require constant surveillance and attention.

IV. A mess-room for warrant and junior engineer officers.

Such officers as are orderly and cleanly in their habits sleep in bedrooms by themselves; such as are helpless physically and mentally, and require constant care and attention during the night, and

Sleeping arrangement for officers.

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others who might do themselves harm, sleep in a large ward well ventilated, under the eye of the watch, who attends to all their wants.

There are ten sleeping in the officers' sick ward, giving 1393 cubic feet of atmosphere to each individual.

The same system is carried out with reference to the warrant and junior engineer officers; they either sleep in separate cabins, or in a night ward in charge of an attendant.

Mess room for seamen and marines.

There are four large rooms for the seamen and marines besides the refractory ward.

1st. A room for convalescents.

2nd. Two large rooms for ordinary patients who are quiet and well behaved.

3rd. A room for the old and infirm, but who are able to move about, and are clean in their habits.

Arrangements for the sick.

There is a large, well aired mess-room where they all mess, except such of them as are confined to bed.

Sleeping arrangements for sick.

Next to the mess-room there are two sleeping wards set apart for the sick, helpless epileptics, and all who require constant looking after and watching during the day as well as night.

For seamen.

There are several men who, although in good bodily health, cannot be made to sleep in the large wards, as frequently they are restless, and occasionally of a roaming disposition, and would disturb the other patients; but when placed in cabins by themselves they get on well. It is found necessary for the watch to visit a few of the patients in cabins every two hours.

With these exceptions the rest of the seamen sleep in large wards, with twelve beds in each, having an attendant sleeping in the same apartment. These wards are visited by the watch every two hours, and every precaution is taken that the patients are kept dry and clean.

By having twelve beds in each ward each patient has 1,161 cubic feet of air, which is continually renewed by ventilating tubes communicating with the external atmosphere.

Officers and men live during the day different from those in which they sleep.

No officer, seaman or marine lives during the day in the same room in which he sleeps at night, except when ill and unable to sit up. There are two refractory day-wards, one for officers and the other for seamen. To the officers' ward are removed such officers as are violent, noisy or troublesome. For ten months out of the twelve the ward is vacant.

Men's refractory ward.

The men's refractory ward is, as a rule, the quietest and most comfortable ward in the asylum, from the fact that a larger number of attendants are kept there, who employ themselves in amusing the more noisy patients at some game or other.

Refractory wards.

Amusements.

The officers' and seamen's day wards are provided with bagatelle tables.

The officers have a large reading-room with a billiard table and library, on the tables of which are placed the leading daily papers and weekly periodicals.

The seamen have two large recreation rooms, one used as a reading-room with a library in it, where they read, play cards, bagatelle,

telle, drafts, backgammon and chess; the other room is reserved for music and dancing. App. No. 6.

During the winter, professional singers are hired to cheer and amuse the patients, and when this is not convenient the patients amuse themselves by singing. Magic lantern exhibitions and readings are held weekly, and scripture readings on Sunday evenings.

Patients during the season are allowed to go to the theatre; and when there was a circus at Yarmouth, they went in parties of thirty and forty, and occasionally in smaller parties. As many as eighty visited the theatre; they went in parties of five at a time with two attendants; a first-class box was set apart for them, so that there was no intermixture with the other visitors. A warm supper was always provided for them on their return. They all conducted themselves with the greatest propriety. Walking parties are sent out weekly on Thursdays, and during the summer season boating and fishing expeditions are frequent; all of which are very popular, and eagerly sought after. As many as fifty of them go on such expeditions.

Walking party on Sunday.

On Sunday it was found that a large party could not be sent out, as the country in the immediate neighbourhood was very crowded. Convalescents, and a few of the steady and well-behaved are, however, allowed to go out. A carriage is found for such officers as are not able to take exercise beyond the hospital grounds, and a certain number drive out daily.

Carriages.

Officers walk out daily, bathe, &c.

Such officers as are able to walk out beyond the hospital grounds go out daily. A limited number of officers bathe in the mornings on the beach. During the fruit season, strawberries, gooseberries and other fruit are provided for the officers and seamen. This is done on general sanitary principles.

Pic-nics.

Pic-nics used to be a separate amusement, but I have considered it best to combine the pic-nic and fishing expeditions, and "hauling the seine."

Croquet.

There are two airing grounds, one for the officers and another for the seamen. Croquet is played by the officers in the quadrangle, and every morning and afternoon several of them are to be found at this amusement, in which they appear to take a great interest. The seamen are able to play in their airing ground, which they do daily. In the airing grounds there are covered sheds in which they can amuse themselves, and be protected in the summer from the rays of the sun and from passing showers; and in winter they can at all times take exercise there without getting wet.

Few of the changes made in the building.

Certain changes, which add greatly to the comfort of officers and men, and also improve the sanitary arrangement of the establishment, have been effected in the building,

Water-closets.

Water-closets are now separate from the building, but with a passage open at both sides, connecting the body of the building with them. These have been built in the two portions of the hospital where the officers and men congregate most, and they have been found to answer so well, that application has been made for two more, which no doubt will be granted.

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Several parts of the building have been warmed with hot-water pipes, adding greatly to the comfort of the patients in winter.

Hot-water pipes.

A new bath-room has been finished, having two baths for officers, each bath having a roomy, well-ventilated dressing-room.

New bath-room.

There is a shower bath, which can be used cold, tepid, or hot. And here I may make one remark on the use of the cold shower bath. There are cases, no doubt, to be met with, in which it may be useful; but I have not yet as met with such cases, and should I fall in with them I would feel inclined to try all other means of cure before having recourse to the cold shower bath. Insane patients would soon get the idea that it was done for punishment; and any system of treatment having a tendency to generate or foster such an idea ought to be avoided.

There is also a vapour bath, but not a Turkish bath.

There are six baths for seamen, where such of them as have sufficient mind can dress and undress without being in the least interfered with, the attendant remaining outside the door in case the patient may require his assistance.

As a matter of course there are several patients who require to be dressed, undressed, and washed by the attendants.

In the bathing of officers and seamen the water is changed for each patient.

Before the patient goes into the bath there must be at least eight inches of water at a temperature of 96°. All patients are bathed once a week. The bath-rooms throughout are warmed with hot-water pipes.

It is an established rule that should an attendant be discovered attempting to give a cold bath without the orders of the Deputy Inspector General he will be dismissed.

The patients' heads are examined, nails and corns cut short.

Dict.

The diet is liberal and good, with an ample supply of vegetables throughout the year, and there is no restriction to what the Deputy Inspector General may order for the sick, or the staff surgeon in his absence.

Beer.

Beer is daily supplied to all the patients as an article of diet; wine and spirits to such as may require them, but restricted to such as have them regularly prescribed.

Attendants.

There are twenty-four attendants in the establishment, about one attendant to every seven patients, a number found to be ample.

There can be no doubt that the more numerous the attendants are, if well looked after, and the proper work assigned to each, the cures will be more. Individual treatment is better than treating the patients like a flock of sheep.

There are some patients who will not improve under any treatment, and all the teaching that can be bestowed upon them will not change their habits, particularly those cases of extreme dementia where the memory is totally suppressed, and where no momentary impression can be made.

There are others who improve under rest, kind treatment, and a generous diet. Some patients require to be drawn out of themselves; their cure is advanced by having a kind, active, and sympathetic

sympathetic attendant, who can engage them in conversation, with pleasing anecdotes, billiards, croquet, drafts, and games at cards. App. No. 6.

It must be kept in view that in order to draw away their attention from themselves, and prevent that morbid self-feeling which grows stronger by inaction, work of some sort is of the utmost importance in the treatment of the insane. It is more difficult to employ the officers than the men, and therefore officers' attendants ought to be cheerful and intelligent, and well versed in the above acquirements. It would also be desirable that the attendants who take charge of the men should be masters of some trade.

About half only of the attendants are able to read and write. Increase of pay and pensions have been granted within the last year. The pensions are granted on the condition that candidates pass the Civil Service examination, consisting of reading, writing, simple addition and subtraction. About twelve attendants sent in their names for the examination. It is not an easy matter to procure efficient attendants. I was under the impression once that marines and soldiers who had been a certain number of years in the service would make good attendants, as they understood discipline and had some idea of cleanliness, but I found that, as a rule, they did not answer. During the two years I have been in charge nineteen men have been dismissed, for the following reasons:— Attendants.

Neglect of duty	2
Insubordination to chief attendant	2
Ill treating patients	3
Drunkenness	3
Absent without leave	1
Not efficient	3
Ill health	1
Own request	4
	19

Forty-one patients were received into the asylum during the year 1867, as may be seen by referring to Table I., attached to this Report, which gives not only the original entries but likewise the re-admissions, discharges, and deaths during that period. Patients received into the asylum, 1867.

The entries for the year may be classified according to the mental symptoms, as follows:—

Acute mania	4
Passive mania	11
Periodic mania	2
Melancholia	9
Imbecility	1
Dementia	14

The Table shows the number of officers, seamen, and marines respectively, who suffer from the above diseases, the causes of which may be classified, as is generally done, under two heads; viz., *Physical* and *Moral*.

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I. Physical Causes:—

General paralysis	8
Epilepsy, arising in *three cases* from injury received on the head, and secondary syphilis	6
Hurts received in the service (injury to the head)	2
Stricture	1
Secondary syphilis	1
Onanism	1
Decided hereditary taint	8
Intemperance	2
Constipation	1
	30

II. Moral Causes:—

Ill treatment when an apprentice. Had an attack prior to his entering the service	1
Domestic trouble (drunken wife)	1
Mental anxiety, dread of examination (engineer)	1
Perverted ideas of religion	1
Depression from loss of property	1
Fright received when crossing THE LINE	1
Unknown causes	5
	11

The relatives of patients are never willing to acknowledge the presence of insanity in their families; they are at all times ready to give information regarding hurts and accidents received in the service, but they will seldom acknowledge (if they can avoid it) that any of their relations have been confined in an asylum.

Let us now see how the forty-one cases stood at the end of the year:—

Died	3
Discharged, cured	13

So there remain under treatment twenty-five patients, which may be arranged as follows:—

May be cured	5
Incurable, permanent residents	20

Incurable, for the following reasons:

Physical:

General paralysis	7
Insanity, with epilepsy	5
Insanity, caused by injury to head	2
Phthisis	1
Hereditary taint	2
	17

II. *Moral Causes:*

Mental anxiety	1
Depression from loss of property	1
Unknown causes	1
Total	20

It

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It will be observed that there were entered eight cases of general paralysis, which I consider a large proportion; but more of this when I come to the physical diseases.

Some further analysis of the entries this year might be desirable, so as to show what class or grades of officers and men supply the largest number. For example:—

Classification.

Petty officers and seamen	7
Coastguard	3
Pensioners	6
Sailmaker's mate	1
Stoker	1
Tailor	2
Captain's cook	1
Dockyard rigger who had been a seaman in the fleet	1
Writer	1
Marines	8
Total	31

The coastguard men may be classified with the petty officers and seamen, making a total of ten. Whether the pensioners are marine or seamen pensioners I cannot say, and they have not intelligence enough to supply me with the information.

There are seven from the non-continued service, where no doubt there is less care paid to the examination of the men. The majority of men who now enter the service come from the training ships, and possibly the strict physical examination they undergo as boys on first entry, and the weeding they are subjected to between their first entry and their final dispersion among the different ships of the fleet, may to some extent account for the proportion of lunatics being less among the seamen class.

The marines, on the other hand, although they are subjected to a minute physical examination, enter the service at an advanced age, and less of their previous history is known, and once entered a marine cannot be discharged so easily as a boy who proves to be physically inefficient. From the manner in which the marines are recruited, I think it more likely that patients should come from that class than from the seamen. In the one, every precaution is taken, and the boys are under observation for a certain number of months, and again re-examined before they are finally distributed; but the marine, once he passes the surgeon, is finally entered. Boys here are few; young marines are common. There is one marine is this asylum who had been discharged from a Line regiment for insanity, and entered the Marine corps a few weeks afterwards.

Less care is practically taken on board ship in the entries of servants, cooks, tailors, barbers, &c.; their previous history is not inquired into, and is therefore virtually a blank. The captain, *e.g.*, wants a cook, the commander wants to enter a writer, a good carpenter, or artificer. Are such men examined with the same care, and their previous history as minutely inquired into, as regular *continued* service men? Certainly not; and the reason is that they are not continuous service men, and may at any time be discharged if inefficient. True; but if a lunatic, the country keeps him for life.

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One of the entries for this year was a writer insane before he entered the naval service. After he entered the service his previous insanity returned, and he was consequently sent to the asylum at Yarmouth, where in the course of a few months he again recovered and was discharged; but on going out into the world he once more broke down, and was sent as a lunatic into a county asylum, where the guardians discovered he had claims on the naval service, and here he is now permanently.

Officers admitted.

Seven of the officers admitted belonged to the military branch, six to the active list and one to the retired, and two to the civil branch.

Discharges for the year, 51 per cent. on the entries.

Having disposed of the entries for the year, I now come to the discharged cured, twenty-one in number. On reference to Table I. the reader may further be enlightened on this point (viz., the discharges on the entries for the year being 51 per cent.); thirteen, as already stated, were patients entered in 1867, and eight belonging to former years.

Deaths.

The deaths during the year have amounted to nineteen. Six officers, eleven seamen, and two marines, making the per-centage of deaths on the average number resident 9·6.

TABLE I.—Showing the Admissions, Re-admissions, Discharges, and Deaths during the year 1867.

	Officers.	Seamen.	Marines.	TOTAL.
In the Asylum, 1st January 1867 - - - - - -	33	96	41	170

	Officers.	Seamen.	Marines.	TOTAL.				
Admitted for the first time - - - -	7	24	8	39				
Re-admitted during the year - - -	2	–	–	2				
Total admitted - - -	–	–	–	–	9	24	8	41
TOTAL under care during the year 1867 -	–	–	–	–	42	120	49	211
Discharged or Removed:								
Recovered - - - - - - - -	4	13	4	21				
Relieved - - - - - - - -	2	–	–	2				
Died - - - - - - - - -	6	11	2	19				
Total Discharged and Died during the Year - - -					12	24	6	42
Remaining in Asylum, 31 December 1867 - - -					30	96	43	169
Average Number Resident during the Year - - -					–	–	–	173

Having

Having fully explained the contents of Table I., I now come to Table II., which shows the admissions, re-admissions, discharges, and deaths from the time I took charge of the asylum up to the 31st of December 1867. App. No. 6. Table II.

TABLE II.—Showing the Number remaining in Hospital on the 1st July 1866, and the Admissions, Re-admissions, and Discharges, from the 1st July 1866 to the present date, 31st December 1867.

	Officers.	Seamen.	Marines.	TOTAL.
In the Asylum, 1st July 1866	27	96	40	163
Persons admitted during the period of one year six months	12	33	10	55
Re-admissions	4	–	–	4
Total Cases in Asylum, 1st July 1866, and since admitted	43	129	50	222

	Officers.	Seamen.	Marines.	TOTAL.
Discharged or removed:				
Recovered	4	19	5	28
Relieved	2	–	–	2
Died	7	14	2	23
Total discharged and died during the last six months of 1866 and whole of 1867	13	33	7	53
Remaining, December 1867	30	96	43	169
Average Number resident during the last six months of 1866, and whole of 1867	30	98	43	171

Table III. shows the admissions, discharges, and deaths, with the mean annual mortality and proportion of recoveries per cent. of the admissions since the 1st of July 1866 to the 31st December 1867. Table III. *See* next page.

Table IV. shows the history of the annual admissions since the 1st of July 1866 to the 31st December 1867, with the discharges and deaths, and the numbers remaining on the 31st December on the year reported. This table gives a history of the year's admissions; how many, for example, of the patients admitted in 1866 have been discharged as cured, how many have died, and how many remain in the asylum on the year reported on. Table IV. *See* next page.

The value of this Table in regard to the vexed question of the increase of insanity is evident.

TABLE III.—Showing the ADMISSIONS, DISCHARGES, and DEATHS, with the Mean the 1st of

YEAR.	Admitted.					Discharged.										Died.				
						Recovered.					Relieved.									
	Officers.	Seamen.	Marines.	Pensioners.	TOTAL.	Officers.	Seamen.	Marines.	Pensioners.	TOTAL.	Officers.	Seamen.	Marines.	Pensioners.	TOTAL.	Officers.	Seamen.	Marines.	Pensioners.	TOTAL.
Last Six Months of 1866	7	5	2	4	18	–	4	1	2	7	–	–	–	–	–	1	3	–	–	4
and Whole of 1867 - -	9	18	8	6	41	4	11	4	2	21	2	–	–	–	2	6	6	2	5	19
Total Averages for 18 Months -	16	23	10	10	59	4	15	5	4	28	2	–	–	–	2	7	9	2	5	23

TABLE IV.—Showing the HISTORY of the Annual ADMISSIONS since the 1st July 1866, on the 31st

YEAR.	Admitted.								Of each Year's Admission Discharged or							
	New Cases.				Relapsed Cases.				Recovered.				Relieved.			
	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.
Last Six Months of 1866	5	9	2	16	2	–	–	18	2	4	–	6	1	–	–	1
1867 - -	7	24	8	39	2	–	–	41	2	8	3	13	–	–	–	–
TOTAL - - -	12	33	10	–	4	–	–	59	4	12	3	19	1	–	–	1

SUMMARY of the TOTAL ADMISSIONS

		Officers.
Per-Centage of Cases	Recovered - - -	25·
	Relieved - - -	6·25
	Died - - - -	6·25
	Remaining - - -	62·50
		100·

Annual Mortality and Proportion per Cent. of the Admissions, for each Year since July 1866.

Remaining, 31st December in each Year.					Average Number Resident.					Per-Centage of Recoveries on Admissions.					Per-Centage of Deaths and Average Number Resident.				
Officers.	Seamen.	Marines.	Pensioners.	Total.	Officers.	Seamen.	Marines.	Pensioners.	Total.	Officers.	Seamen.	Marines.	Pensioners.	Total.	Officers.	Seamen.	Marines.	Pensioners.	Total.
33	72	41	24	170	30	73	41	24	168	–	80·	50·	50·	68·8	3·3	4·1	–	–	2·3
30	73	43	23	169	30	75	44	24	173	44·4	61·1	50·	33·3	51·2	20·	8·	4·5	20·8	10·9
–	–	–	–	–	30	74	43	24	171	25	65	50	40	47	23·3	12·1	4·6	20·8	13·4

with the Discharges and Deaths, and the Number of each Year remaining December 1867.

Died in 1867.				Total Discharged and Died of each Year's Admissions to 31st December 1866.												Remaining of each Year's Admissions, 31st December 1867.			
Died.				Recovered.				Relieved.				Died.							
Officers.	Seamen.	Marines.	Total.	Officers.	Seamen.	Marines.	Total.	Officers.	Seamen.	Marines.	Total.	Officers.	Seamen.	Marines.	Total.	Officers.	Seamen.	Marines.	Total.
1	1	1	3	–	2	–	2	–	–	–	–	–	–	–	–	3	4	1	8
–	3	–	3	–	–	–	–	–	–	–	–	–	–	–	–	7	13	5	25
1	4	1	6	–	2	–	2	–	–	–	–	–	–	–	–	10	17	6	33

from 1st July 1866 to 31st December 1867.

Seamen.	Marines.	Total.
42·42	30·20	32·20
– – –	– – –	1·70
12·12	10·	10·17
45·46	60·	55·93
100·	100·	100·

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TABLE V.—Showing the Causes of Death during the Year 1867.

Cause of Death.	Officers.	Seamen.	Marines.	TOTAL.
Epilepsy	2	2	–	4
General Paralysis	–	1	1	2
Phthisis	–	4	–	4
Bronchitis	–	1	1	2
Catarrh	1	–	–	1
Pneumonia	1	–	–	1
Icterus	1	–	–	1
Abscess of Kidney	–	1	–	1
Erysipelas	–	1	–	1
Abscess	–	1	–	1
Senile Decay	1	–	–	1
TOTAL	6	11	2	19

TABLE VI.—Showing the Length of Residence in the Asylum of those Discharged, Recovered, and in those who Died, during the Year 1867.

Length of Residence.	Recovered.				Died.			
	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.
One month	–	–	–	–	–	1	–	1
1 to 3 months	1	6	–	7	–	1	–	1
3 to 6 „	1	3	3	7	–	–	1	1
6 to 9 „	2	2	–	4	–	–	1	1
9 to 12 „	–	–	1	1	–	1	–	1
1 to 2 years	–	1	–	1	2	2	–	4
2 to 3 „	–	–	–	–	–	1	–	1
3 to 5 „	–	1	–	1	–	1	–	1
5 to 7 „	–	–	–	–	–	–	–	–
7 to 10 „	–	–	–	–	–	1	–	1
10 to 12 „	–	–	–	–	–	–	–	–
12 to 14 „	–	–	–	–	–	1	–	1
14 to 32 „	–	–	–	–	–	1	–	1
32 to 40 „	–	–	–	–	1	–	–	1
40 to 45 „	–	–	–	–	1	–	–	1
45 to 48 „	–	–	–	–	1	–	1	2
	4	13	4	21	6	10	3	19

TABLE VII.—Showing the Duration of the Disorder on Admission in the ADMISSIONS, DISCHARGES and DEATHS during the Year 1867.

	Duration of Disease on Admissions in Four Classes.															
	On Admission.				Recovered.				Removed, Relieved, or Otherwise.				Died.			
	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.
Class First: First Attack, and within three months on admission	4	11	8	23	2	9	4	15	1	–	–	1	–	3	–	3
Class Second: First attack, above three months, and within 12 months on admission	2	6	–	8	1	2	–	3	–	–	–	–	1	5	2	8
Class Third; Not first attack, and within 12 months on admission	1	–	–	1	1	–	–	1	–	–	–	–	–	–	–	–
Class Fourth: First attack, or not, but of more than 12 months on admission	2	7	–	9	–	2	–	2	1	–	–	1	5	3	–	8
TOTALS	9	24	8	41	4	13	4	21	2	–	–	2	6	11	2	19

TABLE VIII.—Showing the Ages of the ADMISSIONS, DISCHARGES and DEATHS during the Year.

AGES.	Admissions.				Discharges.								Deaths.			
					Recovered.				Removed, Relieved, or Otherwise.							
	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.
From 15 to 20	–	2	1	3	–	2	1	3	–	–	–	–	–	–	–	–
,, 20 to 30	2	6	4	12	–	5	1	6	–	–	–	–	1	–	–	1
,, 30 to 40	3	8	3	14	1	2	2	5	1	–	–	1	–	4	1	5
,, 40 to 50	2	6	–	8	1	3	–	4	–	–	–	–	1	4	–	5
,, 50 to 60	1	1	–	2	–	–	–	–	1	–	–	1	–	–	–	–
,, 60 to 70	1	1	–	2	1	1	–	2	–	–	–	–	1	2	1	4
,, 70 to 80	–	–	–	–	1	–	–	1	–	–	–	–	2	–	–	2
,, 80 to 90	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	2
,, 90 and upwards	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TOTALS	9	24	8	41	4	13	4	21	2	–	–	2	6	11	2	19

TABLE IX.—Condition as to Marriage on the ADMISSIONS, DISCHARGES and DEATHS during the Year 1867.

Condition in reference to Marriage.	Admissions.				Discharges.								Deaths.			
					Recovered.				Removed, Relieved.							
	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.
Single	3	12	6	21	–	7	2	9	–	–	–	–	5	7	2	14
Married	6	12	2	20	4	6	2	12	2	–	–	2	1	4	–	5
TOTAL	9	24	8	41	4	13	4	21	2	–	–	2	6	11	2	19

TABLE X.—Showing the probable Causes, apparent or assigned, of the DISORDERS in the ADMISSIONS, DISCHARGES, and DEATHS of the Year 1867.

	Admissions.				Discharges.								Deaths.			
					Recovered.				Relieved.							
	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.	Officers.	Seamen.	Marines.	TOTAL.
Moral:—																
Domestic Troubles	1	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–
Ill-treatment when apprenticed, before entering the service	–	1	–	1	–	1	–	1	–	–	–	–	–	–	–	–
Mental Anxiety:—																
Dread of examination	1	–	–	1	–	–	–	–	–	–	–		–	–	–	–
Perverted ideas of religion	–	1	–	1	–	1	–	1	–	–	–	–	–	–	–	–
Fright when crossing the Line	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–
Depression from loss of property	–	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–
Physical:—																
General paralysis	1	4	3	8	–	–	–	–	2	–	–	2	–	–	2	2
Epilepsy	–	6	–	6	–	–	–	–	–	–	–	–	2	2	–	4
Stricture	1	–	–	1	1	–	–	1	–	–	–	–	–	–	–	–
Injury to head		2	–	2	–	–	–	–	–	–	–	–	–	–	–	–
Secondary syphilis	–	1	–	1	–	–	–	–	–	–	–	–	–	1	–	1
Onanism	1	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–
Hereditary taint	4	–	4	8	1	2	–	3	–	–	–	–	–	–	–	–
Intemperance	–	2	–	2	2	3	1	6	–	–	–	–	1	1	–	2
Constipation	–	1	–	1	–	1	–	1	–	–	–	–	–	–	–	–
Unknown	–	4	1	5	–	7	1	8	–	–	–	–	3	6	1	10
TOTALS	9	24	8	41	4	15	2	21	2	–	–	2	6	10	3	19

With

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Remarks on the causes.

With reference to the causes of insanity, they are for the most part apparent and require no remarks. Insanity, complicated with general paralysis, may be considered incurable, and so may insanity and epilepsy, particularly when, as in several of the cases, it is complicated with previous hurts received in the service. It is worthy of remark that there are several patients within these walls who met with accidents in the service, such as hurts on the head, who were nevertheless able to serve for some years afterwards, but ultimately gave way in consequence of some deterioration of brain substance going on. This deterioration may be dated from the time of the accident, and may be the result of some change in the circulation, some effusion of serum not re-absorbed, but going on to form a half organized membrane, such as is frequently found on the surface of the brain; or it may be some damage done to the inner table; or it may be a change which has taken place, but which one cannot detect; but I have no doubt which has arisen from the injury received. A short time ago I examined the body of a man who, from his own account of the matter, had given good evidence of his having received a hurt, which was followed soon afterwards by insanity and epilepsy, yet no morbid appearance could be discovered beyond a milky deposit glueing a few of the convolutions together.

There are several patients whose illness has been classified under some other cause which might with more propriety be placed under intemperance; their history does not state the fact, but the patients themselves, without much questioning, allow that previous to their mental aberration they led intemperate lives; not that they were hard habitual drunkards, but they kept up a continued strain on the system for some time, by the excitement of drink and excessive sexual indulgence. Such cases recover, unless general paralysis should supervene.

How long should a patient be detained in the asylum after recovery?

It becomes a question how long should a patient be detained in the asylum after he has given evidence of recovery? Practically, I find it difficult to detain such patients. Without, however, laying down any dogmatic rule on the subject, as I think it is a question which must be decided on the peculiar merits of each case, I may state that after patients have given satisfactory evidence of recovery, they are kept under observation from six to ten weeks; they are then surveyed by the medical officers of the establishment, and reported on to the Medical Director General, who orders them to be discharged to Haslar Hospital for further observation among the sane patients, and if found to get on in a satisfactory manner they are finally discharged to their homes, but not to re-enter the service, although I do not know any cause to prevent a man re-entering. If a man enters under another name and no inquiry is instituted into his previous history, how is he to be found out? or who is to take the trouble to make any such inquiries? I have frequently known men being refused admission as continued service men, who were at once admitted as non-continued service men.

Mental and physical diseases, not independent of each other.

In every day language there is a distinction drawn between mental and physical diseases, whereas, properly speaking, every case of mental aberration, from the slightest form to the severest, when all intelligence

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The various functions of the brain not understood.

intelligence has become clouded, is dependent on some physical change or disorganization of some part of the brain or of its lining membranes. There can be no doubt that if the functions of the nervous tissue of the brain were clearly understood we should be able to state the true relation they obtain with respect to mental evolutions; and thus arrive at a scientific basis from which we could assert with confidence (the data of mental aberrations being given) what portion of the brain was really diseased; this, however, is beyond the present range of scientific knowledge. The organ of speech is undoubtedly dependent on some portion of the brain for its healthy action; and although we are ignorant of the cause, it is remarkable that no symptom is more commonly met with in different stages and degrees of brain disease than impediment of the tongue, which of itself is a proof of the close connection between the nervous system and the mental faculties, but their relation is still unexplained. Do we know from what cause and from what part of the brain the high and exalted ideas of the general paralytic spring? They have been supposed to result from congestion and lesions of the meningeal vessels; but this does not hold true, nor do these lesions reveal the whole truth.

This is a state of knowledge which no doubt future labourers will arrive at, but it must be our aim to endeavour to grasp apparent facts.

Is mental disease distinguishable from physical disease, or decay?

Is there such a thing then as mental disease? Is not the partially expressed idea as much a symptom of disease of the brain as the rusty coloured expectoration is of disease of the lung, or the albumen in the urine a proof of blood poison, accompanied it may be by structural disease of the kidneys?

Existing simultaneously in all cases they must be regarded as one.

When, therefore, I speak of mental disease, I mean, not that the mind is diseased, but that the brain is diseased either partly or as a whole; what the mind is I cannot say; all that we know of it is through our own consciousness, or in its operations as expressed in the actions of others. The day may not be far distant when all the present artificial classification of mental disease will be arranged as diseases of the brain, or, in other words, as physical diseases; but before such can be the case it will be necessary to become better acquainted with the simple and compound functions of the different organs of which the brain as a whole is composed.

Illustration.

The different forms and phases of insanity are not the natural and and veritable disease, they are simply the symptoms of certain changes going on within the brain, or on its surface, as the result of diseased action.

The mind, being immaterial, cannot change.

If we make the different forms of insanity the actual disease, then we must allow that the mind itself is subject to changes and variations of which we have no evidence.

Insanity the result of disorganisation of the brain.

We have evidence, however, that in the majority of cases of insanity there is a corresponding disturbance or even disorganization of the brain; in many cases our present powers of observation cannot discover any abnormal changes; but because we have not found them is that a proof that they are not there?

Illustration.

My meaning will be better understood when I say that in disease of the lungs there is cough, pain, dyspnœa, and a variety of other symptoms arising from actual disease of the lung; would it not be considered absurd to call each symptom the actual disease, and not

trace

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trace and refer the symptoms to diseased changes going on in the substance of the lungs? Such in my opinion is the way in which we are classifying diseases of the brain; symptoms are classed as diseases, from our not knowing the function of each particular part of the brain. When we come to know the healthy functions of life, the symptoms of disease, and the after-death appearances, we shall then be able to set forth a better arrangement of brain affections. It is often said that the symptoms in life and the after-death appearances do not agree, or, in other words, that Nature is not true to herself in disease as she is in health; but disease unquestionably has its laws bounded by certain landmarks which, as our knowledge increases, will be found unvarying.

Do the symptoms in life, and the post-mortem appearances, agree?

Having made these few remarks in order to point out my views of what are generally called mental diseases, I now come to the physical diseases during 1867.

Physical diseases, 1867.

The medical and surgical cases are composed of such as require to be removed for treatment from the general day wards to the sick wards, and as soon as they are cured and able to return to the day wards they are discharged. The general character of the physical list may be summarily given:—

General arrangement.

Six cases remained from last year; fifty-one cases were entered during 1867, viz.:—Disease of the brain, eleven; thoracic organs, twelve; abdominal, twelve; urinary, two; diseases of the skin, nine; debility and senile decay, three; accidents, two; of the six cases remaining and fifty-one cases entered, thirty were discharged cured to the day wards; nineteen died, and eight remained at the end of the year.

The number of cases, and their complaints respectively.

Number cured.

The deaths were from the following causes: disease of the brain, six; thoracic organs, eight; abdominal, one; urinary and skin diseases, three; senile decay, one.

Causes of death.

The mortality at first sight appears large, being 10·98 on the number resident in the asylum, and 35·85 per cent. on the number entered in the physical list. When, however, we take into account the nature of the cases, and consider the fatal nature of the diseases from which these patients suffered, as well as their advanced age in many cases, the mortality will not appear excessive. The average age of the nineteen who died was as high as fifty-six; the youngest being twenty-eight, and the oldest eighty-four.

Large mortality, how accounted for.

Of the sick cases remaining from last year, one only demands special remark. This is an old man of eighty-four years of age, and four years confined to bed, who, although he is a "wet" patient, is free from all "bed sores," a circumstance that speaks well for the nursing and the attention paid to cleanliness. In order to prevent "bed sores," it is necessary that the body be well nourished, and kept physically in a good condition. For some months before the end of the year, a large broad-based warty growth appeared on the upper part of the sternum, which at one time threatened to be troublesome, as it was rapidly increasing towards the end of the year. Senile prurigo supervened with a decline of nervous energy, and in this state the hips, and all places where there was any pressure, began suddenly to redden and form sores. Simultaneously with all this change,

One patient specially remarked on.

"Bed sores."

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change, the warty growth on the sternum suddenly dried and shrivelled up, arising I suppose from want of nourishment, the capillary circulation becoming deficient. He died soon afterwards. In this, as well as other cases, it holds true that "bed sores" do not depend so much on the pressure and wet, as on a low state of vitality and the absence of nervous power, as evidenced in this hospital in cases of acute mania, epilepsy, general paralysis, and coma.

Epilepsy.

Coming to the list of physical diseases, the first I find is epilepsy.

I am not, however, at present going to enter into any discussion concerning the nature, origin, and cause of convulsions in general. It will answer our purpose, at present, to point out a few of the symptoms which may be seen in such cases in this hospital, two of which show how difficult it is to distinguish between insanity complicated with epilepsy, and insanity complicated with general paralysis.

Convulsions, their relation to the nerve element.

Epileptic convulsions are only a prominent symptom, and are minutely associated with disease of the brain, as in the cases before us; their relation, however, is but little understood. Convulsions no doubt arise from a disorder of the sensorial motor nervous centres; but so little do we know of the constitution of a nerve element, and of its electric and chemical relations, that we cannot state positively whether convulsions arise from a polar disturbance in the electric currents, or from some undiscovered chemical changes taking place in the substance of the nerve during the transmission of these currents, or from both. That in all cases of insanity, but especially insanity complicated with epilepsy, organic changes of nerve element take place, is unquestionable; but this fact, although it staves off our ignorance a little further, serves also to show how difficult it is to arrive at a true estimate of those changes. Organic changes, for example, may take place in the molecular nerve centres, without producing any more serious effects than loss of mental or physical energy; but why, in some instances, such changes are followed by mental derangement or by epilepsy, while in other cases the only result is a mere change of energy, is a question we are not prepared to answer. Chemistry has not yet supplied us with a complete physiological analysis of nerve element, and until it has done so, the occult nature of the complex function of the nerves will remain unrevealed. It is remarked by Dr. Maudsley, in his valuable work on the "Pathology of the Mind," that there is a certain evidence not only of the electro-motor properties of nerve, but of a modification of these during functional activity; such modifications again testifying to an intimate change in the polar molecules of the nerve.

In cases of insanity complicated with convulsions, the proper view to take of them is therefore simply this: not that epilepsy is the cause of the degeneration of nerve substance, but rather the result of such a change.

If in the case of ordinary convulsion daily met with, the convulsions arise from some deficiency in the properties of the nervous tissue,

tissue, may not this deficiency prevent a free elimination, or rather, perhaps, a free transmission or circulation of the electric current, through the nervous system? App. No. 6.

The convulsions of an epileptic very much resembles the effects produced by the application of an electric machine.

Is it not possible that the disproportion which may exist between the conducting power of the nerve, and the force of the current passing through it, may give rise to those convulsive movements which are the inevitable sign of nervous decay? From various observations, I am, myself, inclined to this theory.

In conclusion I may add, that the researches of Matteucci, and of Du Bois Reymond, have clearly established the doctrine of electric currents in nerve as in other animal structures; and Pflüger has practically explained the laws which regulate their movements. Dr. Maudsley has pointed out how such discoveries may be brought to bear on some pathological results in insanity, upon which the knife of the anatomist, or the most powerful microscope could throw no light. Such being the present state of our knowledge, there can be little doubt that the more the laws which regulate the movements of electric currents within the nervous system are brought to light, the more will the convulsive movements be understood; and if ever science will shed its luminous light on a subject which at present is almost a mystery, we shall find that the ever-varying phenomena of health and disease are not the result of mere arbitrary caprice, but of the presence of an inexorable law, which acts with the same uniformity as that which controls the scattered multitude of stars in eternal space.

The question may be asked, did the epileptic convulsion first appear in the cases under consideration, or the symptoms of insanity? This question can easily be answered. The history of the different cases clearly demonstrates that the mental aberration first appeared, then the epileptic convulsion. Insanity precedes epileptic convulsions.

In the cases under consideration it was remarked, that after each fresh attack of convulsion, the patient was rendered less capable of conveying his ideas to those around him, or of forming any ideas at all. From this fact I infer that the convulsions were not the cause of the loss of intellect, but merely the external symptom by which the increasing diseased action manifested itself. Convulsions are only one of the steps in the symptoms of brain substance breaking down. This becomes more evident in the case of epilepsy, caused by hurts on the head, and followed some years afterwards by insanity. As the disease advances, epilepsy ensues, then complete dementia.

Treatment is of little avail here. Dr. Conolly, who saw several thousands of such cases, says he never knew a recovery. Once brain or nervous substance becomes disorganised or softened, can it be restored?—I fear not. Once a change takes place of brain substance, and perverted nutrition makes its way into the functions of life, can Nature retrace her steps, remove the strange deposits, replacing it with brain or nervous substance?—I fear not. No treatment can restore new vitality.

Case No. I.—This case came here in May 1865, showing symptoms of dementia. He suffered severely from syphilis, if one can judge Epileptic fits. Case No. I.

App. No. 6. judge from the cicatrices. In September of the same year he had a decided epileptic fit for the first time, which lasted twenty-five minutes. After this fit, the symptoms pointed to general paralysis, such as thickness of speech, the loss of power, and want of co-ordination in the lower extremities. In the next attack, the patient, instead of having a convulsive fit, passed suddenly into a state of profound coma, the extremities being very cold. After being a few hours in this state, consciousness returned; then, in the same evening, he became comatose, with a complete relaxation of all muscular action. He remained in this state for eight days; the power of swallowing was completely gone, and the surface frequently became cold. During this time he was supported by nourishing enemas, administered every eighth hour, containing milk three ounces, one egg, and one ounce of brandy.

Coma. It may be asked whether this is the result of softening, or of hæmorrhage. Trousseau has endeavoured to answer this question, and his opinion is that hæmorrhage is the cause. I think these states of profound coma differ only in degree from ordinary convulsions. During this state of coma, catheter had to be frequently introduced. The urine passed was so concentrated and acrid, that it caused a peeling of the skin from the scrotum, and whatever parts it touched, required frequent washing with tepid water and borax solution. The heels in three days blistered, so did the inside of the knees and ankles where they touched each other, which, if not carefully washed, would soon run into sloughing sores. The hips got red and abraded. All this arose, no doubt, from the low state of vitality, or from the complete dormant state of the nervous system.

Treatment. The best treatment consists in wrapping the lower extremities in cotton wool and flannel bandages, and placing the limbs on water-pillows, even if a patient is on a water-bed. In order then to prevent such symptoms, the patient should be placed early on a water-bed; should be well supported with enemas, containing a liberal allowance of brandy; should be washed frequently, and the parts well dried over which the urine passes; and, above all, the feet ought to be wrapped in cotton wool. After having had three such attacks of coma, the epileptic fits again appeared. On the 9th of May 1867, he gave evidence of an epileptic fit by suddenly turning pale, the head falling on his breast. He was placed in bed before the first convulsion came on. During the afternoon he had twenty-five fits, some of them continued as long as three minutes, and others half a minute only. The surface was covered with a copious perspiration. Throughout the evening slight convulsive twitches appeared in different parts of the body. At 3.30 A.M. a strong convulsion, and he died.

Summary of the case. The following is a summary of the above case:—

1st. There was insanity; whether exalted ideas, his previous history does not say.

2nd. Some months afterwards, epilepsy.

3rd. After the first epileptic fit, decided symptoms of general paralysis supervened, with complete obliteration of mind.

4th.

4th. Instead of epileptic fits, profound coma ensued. Four such attacks followed, one of which lasted eight days, by which the nervous power became dormant. App. No. 6.

5th. There was hereditary taint.

6th. The patient suffered from syphilis and stricture.

7th. Chloroform was administered during the convulsions, but it only seemed to aggravate the symptoms, and increase the lividity of face and upper part of the body. The friends did not give permission to examine the body.

The next case is one where the history is complete. Was admitted January 1st, 1867. His brother died from epilepsy, in an asylum. He showed symptoms of insanity six weeks before he had any fits, and was thirteen days in the asylum before he suffered from one. He was physically in a weak state of health; his vital power low. He had the habit of tearing himself to pieces with his nails. Passed all excretions in bed, and the urine was, as it is in all such cases, scanty, highly concentrated, and scalding, causing excoriation of all parts over which it passed, chiefly the scrotum. Vesicles formed on any part of the lower extremities where there was the least pressure, or where the limbs came in contact with each other. As his physical condition improved, these symptoms gradually passed away, and his general health had very much gained ground, when, on the 6th of April, a series of fits, of from twenty to thirty, seized him, leaving him completely shattered in body and mind. It was found that he had lost the power of speech, and in a great measure that of swallowing; in short, aphasia, with complete paralysis of the tongue, supervened, with glosso-laryngial paralysis. When sitting in bed, everything that was put into his mouth came out again. The only way he could be got to swallow was, by placing him on his back, and feeding him with teaspoonfuls of concentrated food, such as milk, eggs and brandy, with beef-tea. He managed on the whole, for a time, to take good nourishment, and would be sufficiently nourished had not a debilitating and serious diarrhœa, in which the epithelium came away, for a time baffled all treatment. Together with this, he was continually troubled with convulsions in some part of the body, by which he was completely worn out. He became a living skeleton, and a most pitiable object before death; and when death closed the scene, there was no trace of cellular-tissue, or even muscle, except mere shreds. His friends refused permission to examine the body. Case No. II. Aphasia.

The third case under consideration is that of an officer (æt. 38). It is a different case from the above two, but in some measure resembles the last, inasmuch as the organ of speech becomes affected. The chief symptom for which this patient was sent here was a defective memory and imbecility; there was no evidence of his having had epilepsy until he came here; and after he came he was for some time troubled with faintings of a transitory nature, and with loss of consciousness; but with each of them a fresh blow of oblitera- Case No. III. First symptom.

App. No. 6.

tion was given to some portion of the brain, each in succession, leaving the mind more clouded.

Faintings.

After having several of these faintings, there came a decided attack of epilepsy, when I may say all intelligent intercourse between him and the external world terminated. The next

Aphasia.

symptom was complete aphasia; but though not able to express himself, there was no paralysis of the tongue; he could evidently move it freely.

Epileptic fits.

The epileptic fits increased in number rapidly, occasionally alternated with attacks of profound coma, extending from six hours in duration to two days, attended with all the symptoms already mentioned in case I., of loss of nervous energy, and tendency to sores. On the 21st of December 1867 a fresh series of convulsions began and continued to the 24th December, when, completely worn out and exhausted, he suddenly expired. From the morning of the 21st December to the 24th of the same, he had in all 262 distinct convulsions, some of which were of five minutes' duration, the average being two minutes.

Convulsions.

The convulsions in this case seldom confined themselves to one extremity, generally they attacked the whole or half of the body; sometimes the whole of the right side seemed paralysed, at other times the upper or lower extremity; but there was no continued paralysis of either side or extremity, the power of motion returning in a day or two, after the patient was able to sit up.

Last convulsion, peculiarity of.

The last or final convulsion was somewhat different from the rest in its course and result. The convulsion began suddenly on the left side of head and face, drawing the face forcibly to the left shoulder, passed down the neck and left arm to the points of the fingers; then down the left side to the toes; then attacked the toes of the right foot, passed up rapidly the whole of the right side; the fingers of the right hand were powerfully contracted, the face was suddenly drawn to the right shoulder; the muscles of the right side of face and head became contracted, and simultaneously with the last contraction he died.

Throughout the whole history of this case it was found necessary to keep up an action on the bowels, and indeed during the first attacks of fainting the benefit derived from a purgative was so very decided that it was supposed at first the fainting was caused by accumulation in the bowels; but the next attack in the month of May made it evident that the disease was of a g[illegible]ver nature.

Bromide of potassium.

When epilepsy was suspected bromide of potassium was administered, but without any good results; chloroform was administered by inhalation, and by injection by the rectum without any benefit.

Case No. IV.

The fourth case, a seaman aged 42, entered in 1865 and died in 1867; this was an ordinary case of dementia, followed by epileptic fits; in the intervals he was quiet and easily managed, but immediately before and after a fit he manifested maniacal symptoms. The fits recurred every third or fourth day; this patient suffered from severe neuralgic pains before a fit. In October 1867 his fits began to increase in number, and between the 22nd October 1867 and the 2nd November he had had 331 fits, and died from exhaustion.

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Case No. V.

The fifth case is living at the end of the year, but rapidly progressing towards a fatal termination; this is a case in which insanity appeared followed by epileptic fits; and about two months after coming into the asylum, after a fit, decided impediment of the tongue supervened, with tremor of the upper lip and occasional spasmodic action of the muscles of the face, such as is seen in general paralysis, with staggering walk, which gradually increased. Each fit, as in the cases already mentioned, was followed by a suppression of a certain portion of intellect, until at last no ray of intelligence remained. This I consider to be another case in which there was an intermixture of the ordinary insanity with epilepsy, and in which symptoms corresponding to those of general paralysis supervened. Trousseau in one of his clinical lectures says:—

Epileptic fits.

Spasms.

Loss of intellect.

"If you examine an epileptic carefully after one of the fits, or, better still, several hours afterwards, the next day for example, you will find on his forehead, throat, and chest, minute red spots, looking like flea bites, which do not disappear on pressure, and have all the character of ecchymosis. This is a sign of great value, for the ecchymoses are a sure sign of the epileptic fit."

Trousseau quoted. Ecchymosis.

I have carefully examined the cases above mentioned after the fits, but have not been able to detect the ecchymosis, or any spots resembling it.

Two of the cases now mentioned were examined after death. Case III. was characterised by the membranes and brain being blanched and bloodless; on dividing the membranes three ounces of serum escaped; a small patch of ecchymosis at the pacchionian glands; surface of brain flattened by pressure of skull, in consequence, as will appear, of distention in lateral ventricles, which were found distended with serum, about four ounces in each side; the parts entering into the formation of the floor of lateral ventricles were quite soft and broke down on the least touch.

Post-mortem examination of the third case.

Arteries large and congested; dura mater highly vascular, and on dividing the membrane there was much liquid effusion, great venous congestion of left side.

Post-mortem examination of Case IV.

On removing the hemispheres to a level with the corpus callosum much oozing of blood from the puncta.

Pons varolii of the consistence of cream.

Summary of the five Cases.

Summary of the five cases.

1st. Insanity, followed by epilepsy; symptoms of general paralysis, coma; death from exhaustion after twenty-five fits.

2nd. Insanity, epilepsy, aphasia with complete paralysis of the tongue. Glosso-laryngial paralysis; complete absorption of cellular and muscular tissue; death after a repeated series of convulsions from exhaustion.

3rd. Insanity, defective memory, sudden and transitory faintings with complete loss of consciousness; aphasia without paralysis of tongue; no ray of intelligence left. Death after 262 convulsions during the last four days of life, membranes of brain bloodless, with softening of important parts, and extensive serous effusion.

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4th. Insanity, epilepsy, neuralgic pains; death after 331 fits during the last nine days of existence; congested state of membranes, and oozing of blood from puncta resembling ecchymosed spots.

5th case. Maniacal insanity, epilepsy, symptoms of general paralysis.

Conclusion.

It was my intention to have given the results of several observations taken by the clinical thermometer in Case III. and others; also observations on general paralysis as met with among the officers, seamen, and marines of the fleet, with remarks on cases requiring feeding with the stomach pump, &c., but these interesting subjects must be delayed for some other time.

Appendix, No. 7.

PATHOLOGICAL PAPERS—*continued.*

No. 6.

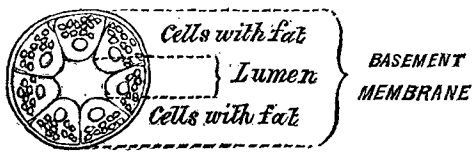
On some forms of Renal Disease associated with Dropsy. By JOHN D. MACDONALD, M.D., F.R.S., Staff Surgeon R.N.

SINCE first the anatomy of the kidney was so beautifully demonstrated by Professor Bowman, a great deal of misunderstanding has existed amongst medical men as to the nature of the so-called reticulate fibrous matrix through which the intricately winding tubuli uriniferi were supposed to pass. A most illusive proof of the existence of such a structure may be at any time obtained by submitting a thin slice of kidney to the action of water falling from a tap with some little force; in this way most of the epithelial lining will be washed out of the homogeneous basement membrane of the tubules whose casual section at various angles, and linear crumpling and creasing, will present the appearance of a stout fibrous reticulation.

Professor Beale seems to have been the first to discover this fallacy, and any new light upon the subject of the kidney comes well from the successor of Professor Bowman in the King's College. That there is, however, a delicate connective tissue running with the vessels in the intertubular spaces can scarcely be denied; but it will readily be seen that the vascular meshes themselves must sustain the principal pressure from the dilated tubes, arising from whatever cause, and the moniliform enlargements of the latter between the meshes of the vascular plexus are easily accounted for.

When fatty matter, normally present in small quantity, accumulates within the kidney cells, not only is their bulk increased, but as a corollary so also is a diameter of the uriniferous tubules, distending the capillary rings surrounding them, compressing all the little vessels running between them, and thus ponding back the circulation upon the Malpighian tuft. This latter condition necessarily favours the escape of albumen from the blood, and ultimately dropsical effusions arise. In the nature of the case, the outer wall of the secreting cells where they rest upon the casement membrane must be somewhat larger than the free surface turned towards the lumen of the tubules. It is easy to conceive how the cells might suffer enlargement without increasing the diameter of the tubuli, but the calibre of the canal circumscribed by them must be proportionately diminished. This would be caused by the greater deposit of fatty matter occurring between the nucleus and the inner

App. No. 7. end or summit of the cells; but the fact being otherwise, as shown in the diagram, namely, that the principal deposit is always between the nucleus and the base of the cells, enlargement of the tubules is inevitable where the epithelium remains intact, while the potency of the lumen is preserved much longer than would be otherwise possible. This interesting point does not appear to have been hitherto noticed by pathologists, and may account in great part for the lingering nature of the disease in some instances.



Transverse section of Tubule in fatty degeneration of Kidney.

On the other hand, if the shedding of the epithelium attending the effort to eliminate morbid or other matter, block-up or choke the tubules, similar phenomena present themselves, as sometimes happens in the desquamative stage of scarlatina, or in simple nephritis.

Calculous accumulations near the delivering extremities of the tubules, if sufficiently extensive to involve a considerable portion of the secreting structure, may induce like results. The tubules thus become distended with their own secretion, imbued with the liquor sanguinis from the congested tufts.

In a case of anasarca devolped rapidly and spontaneously, without premonitory symptoms or any sensation whatever referable to the kidney, the urine was examined soon after the accession of the disease. It was in pretty fair quantity, of a dingy brownish yellow tint, and highly albuminous; casts of the uriniferous tubules were plentiful, both tubular and solid, and varying considerably in refractive power; they were in some instances quite homogeneous, in others granular or implicated with epithelium more or less altered, or with blood or pus corpuscles. The three latter elements were also found free in the sediment, together with a considerable amount of oxalate of lime in dumb-bells, though these were more usually found imbedded in the fibrinous casts, substantiating Professor Beale's opinion, that they are originally formed in the kidney. The points of interest developed in the examination of this urine were the following:—

1st. Its close correspondence with the characters of the urine in the desquamative stage of scarlatina, especially noticeable in the almost complete absence of bright refracting fatty globules, all the fatty matters being of a duller appearance and more consistent, or, as it were, concrete; next, in the occurrence of dumb-bell crystals in the casts and the usual presence of blood-discs.

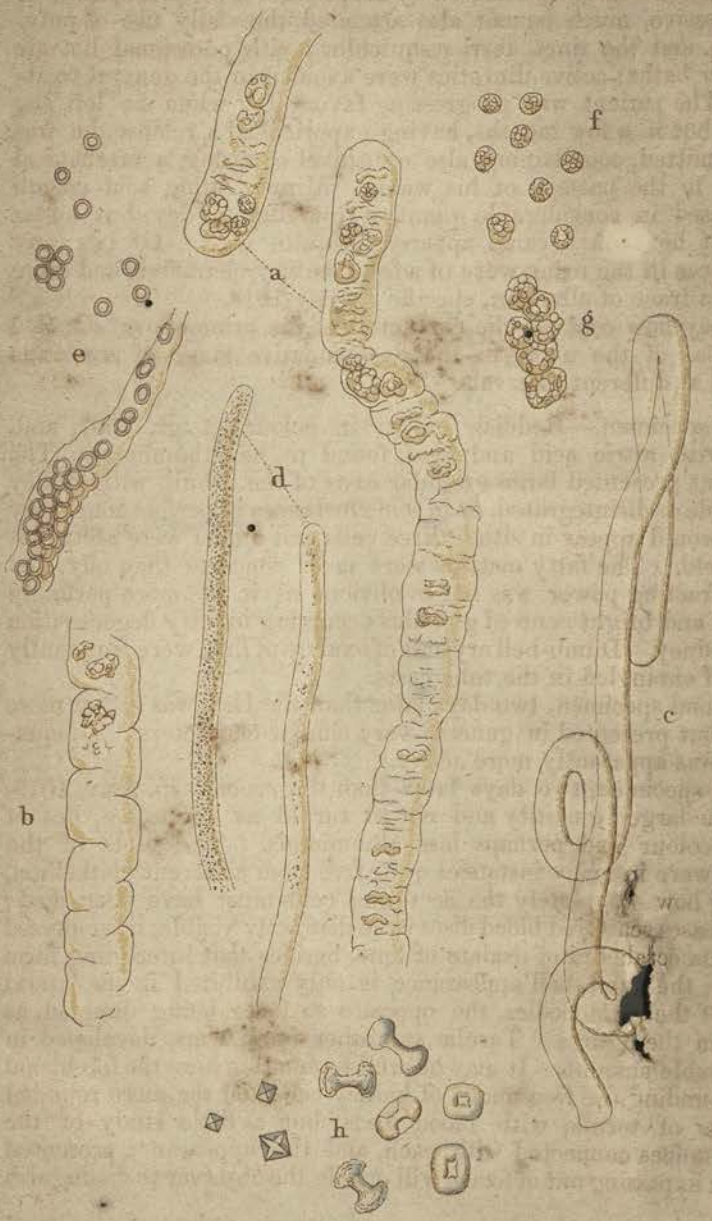
2. The evidence of some external obstruction to the passage of the tube casts, as exhibited in the transverse package of the cells and débris imbedded in them, as also the zig-zag flexure of the casts themselves and their vertical compression in tubules of larger capacity near the outlet.

3. The great length and tenacity of the casts and their remarkable difference in refracting power, from a mere streak, scarcely visible to one sharply defined and of a more or less yellowish tint.

4. The

To face p. 135.

Fig. 1.



J. D. MACDONALD
AD. NAT. DEL.

4. The delicate tubular nature of some casts while others were quite solid. App. No. 7.

This case was greatly relieved by acupuncture, when the anasarca was excessive, much benefit also attended the daily use of pulv. jalapæ co. and the tinct. ferri sesquichlor., with occasional hot air and water baths; active dinretics were avoided in the general treatment. The patient was progressing favourably when he left the menttal, but in a few months, having experienced a relapse, he was hospi admitted, complaining also of gravel opposing a mechanical obstacle to the passage of his water. Minute lithic acid calculi were passed in considerable quantity from day to day, but under treatment he soon became apparently quite well. Of late any appearances in the urine were of a fragmentary character, and there was but a trace of albumen, specific gravity 1018.

We may now contrast the characters of the urine above detailed with those of the urine in the desquamative stage of scarlatina observed at different intervals.

First specimen.—Reddish brown in colour sp. gr. 1007, and, tested with nitric acid and heat, found to be albuminous. The settlement presented large granular casts of the tubuli, with kidney cells whole or disintegrated, or in some instances in perfect continuity as they would appear in situ. Free cells and nuclei were abundant in the field. The fatty matters were more concrete than oily, and their refracting power was not so obvious as in the more perfectly rounded and bright centred globules occurring in fatty degeneration of the kidney. Dumb-bell crystals of oxalate of lime were frequently observed entangled in the tube casts.

A second specimen, two days later than the last, was rather more turbid, but presented in general very similar characters. Desquamation was apparently more active.

Third specimen, two days later than the second, sp. grav. 1019. Urine in larger quantity and not so turbid as heretofore, but of darker colour and perhaps less albuminous. The casts of the tubules were in many instances quite free from adherent epithelium, showing how completely the secreting cells must have been shed; in such cases scattered blood discs were distinctly visible, interspersed with little octahedra of oxalate of lime, besides that interesting form in which the dumb-bell appearance is only exhibited in the lateral aspect of the little bodies, the opposite surfaces being dimpled, as shown in the figures. Torulæ and other fungi were developed in considerable amount. It may be well to mention here the likelihood of confounding the free nuclei of kidney cells and the more rounded segments of torulæ with blood discs, but a little study of the circumstances connected with each, and the appearance presented by them in passing out of focus, will enable the observer to distinguish them.

EXPLANATION OF THE FIGURES.

1. *Obstructive Nephritis.*

a. Fibrinous casts of the uriniferous tubules with implicated cells, cell-nuclei, and pus corpuscles; longitudinal pressure and impaction

App. No. 7. in the tubule is indicated by the transverse arrangement of the particles in the larger cast.

b. Cast with zig-zag flexure from the same cause.

c. A long pure cast of highly refracting material.

d. Intra-epithelial casts, one minutely granular.

e. Blood cast and free blood corpuscles.

f. Pus, and *g.*, epithelium with concrete fatty contents.

h. Octahedra and dumb-bells of oxalate of lime.

2. Desquamative stage of Scarlatina.

a. Fibrinous casts with, 1, kidney cells; 2, cell nuclei; and 3, crystals of oxalate of lime.

b. Patch of epithelium; 1, detached cells, at 2 the nucleus is about to escape, with a close resemblance to a blood corpuscle.

c. Free blood discs.

d. Octahedra and dumb-bells of oxalate of lime.

e. Phosphate of lime. *f.* Torulæ and other fungi.

Fig. 2.

J. D. MACDONALD
AD. NAT. DEL.

App. No. 7.

Pathological Papers.

No. 7.

Forms of Mitral Disease with Rupture of the Cordæ Tendineæ, by John Denis Macdonald, M.D., F.R.S., Staff Surgeon, R.N.

Mitral disease is frequently attended with ulceration, or softening, with rupture of the cordæ tendineæ connected with the right bifid segment of the valve. In a case under the care of the late Dr. R. B. Todd, and of which the writer made a drawing at the time, the patient died rather suddenly, several cordæ tendineæ of the same portion of the valve having given way, but without much other apparent disease. The broken ends of the cordæ exhibited some slight enlargement, but there was no external deposit upon the investing membrane. In another case of mitral disease, occurring at Haslar Hospital (No. 7 A.), old rupture of some of these cordæ was evidenced by the rounded thickening and finish of the severed ends, together with a peculiar soft cellular deposit between the white fibrous axis of the little tendons and their endocardial investment. Some of them (A. 1) were found attached to the parietes of the heart like Lernean parasites, whilst others held a less equivocal connection with the columnæ carneæ. On examining the yellow material giving rise to the form of thickening here noticed, it was found to consist mainly of rounded or oval cells much larger than, but very similar to, the vesicular nuclei, of the fusiform fibre-cells, distinctly traceable in the white fibrous tissue of the cordæ, and of which they might be regarded as an abnormal modification. These cells contained fatty matter in minute rounded granules, but were apparently destitute of true nuclei. Probably from rupture of the cells, the same granules were widely distributed over the field of the microscope. The muscular tissue was also the subject of fatty change.

In atheromatous disease no such definite cells as those above described are discernible. No. 7 B. illustrates a remarkable case of this nature, with rupture of numerous cordæ tendineæ, also connected with the right mitral flap. The leading particulars of the case are given by Dr. M'Clement, Assistant Surgeon, R.N., who watched its progress.

—— —— æt. thirty-one, P. M. admitted into hospital on the 29th June 1868. Had been invalided from the Pacific Station for heart disease. The patient first came under medical observation, 21st March 1868, while labouring under profuse salivation, occasioned by his own unguarded use of mercurial ointment, without advice. A bruit was then detected with the first sound of the heart, heard more distinctly at the base, and over the ensiform cartilage. Little is stated of his previous history, but that for the past month or two he experienced some difficulty in breathing, that he had

App. No. 7. lately contracted syphilis, and also suffered from an attack of rheumatism. On his reception into hospital, the following notes of his case were taken:—"A bruit synchronous with the first sound of the heart is heard very distinctly along the course of the aorta, with strong impulse in the epigastric region; feet have been œdematous for about a week; pain in the chest, and dyspnœa on using exertion; sallowness and anxious expression of countenance. The radial pulse is more distinct on the left side; starts in his sleep, and cannot remain in the recumbent posture." It is worthy of note, that when he was invalided, 30th March 1868, he was described as a "tall thin anæmic man," yet on admission, were it not for the indications above mentioned, any one would have called him a fine vigorous fellow.

2nd July.—A careful stethoscopic examination was made; a rolling-motion was felt by the hand placed over the heart, and the same sensation was conveyed to the ear through the stethoscope. The bruit had become louder and more continuous, conveying the idea of a fluid passing through a tubular opening, affording at regular intervals a kind of musical modification of the otherwise monotonous tone.

4th July.—Pulsation much increased over ensiform cartilage; great anxiety of countenance, with some irritability of temper.

6th July.—Lower extremities more œdematous, and for the first time the urine was loaded with lithates. From this time he lingered with gradually increasing dyspnœa and physical exhaustion until 5.5 p.m. on the 8th July, when he died.

Autopsy.—Thirty-four hours after death. Body well nourished; lower limbs œdematous. On making an incision through the costal cartilages, a quantity of straw-coloured serum welled out, and, on further examination, it was found that the cavities of both pleuræ, as well as the pericardium, contained a large amount of fluid. The heart itself was greatly enlarged and engorged with blood, and when the latter was carefully washed out, weighed 1 lb. 6 oz.

The appearance presented on laying the left ventricle open, is well rendered in the accompanying drawing, No. [illegible]; the other parts of the organ exhibited nothing worthy of special comment. There was extensive thickening of the mitral valve, with ulceration and consequent extensive rupture of the "cordæ tendineæ," rendering the right flap quite reversible in the auriculo-ventricular opening during the systole of the heart.

Explanation of the Figures.

No. 7 A.—*Valvular disease*, with rupture of some of the cordæ tendineæ connected with right flap of mitral valve. 1 and 2. Severed cordæ tendineæ, with yellow cellular deposit between the fibrous axis and the endocardial investment, rounding off the sides and ends. 3. Yellow deposit highly magnified, showing its component

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Nº 7 A

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ponent cells and fatty granules. 4. Fusiform fibre cells, with vesicular nuclei, probably the primordial state of the cellular bodies of the yellow thickening. (3.) 5. White fibrous tissue of the cordæ tendineæ. 6. Portion of endocardium, with white fibrous substratum.

No. 7 B.—*Mitral disease.* The left ventricle and root of the aorta being laid open, the principal seat of disease, the right or anterior flap of the mitral valve is fully exposed, needing no further description.

INDEX

TO SHIPS AND STATIONS,

WITH

LIST OF MEDICAL OFFICERS.

1866.

N.B.—Where the names of two or more Surgeons appear to one Ship, it is to be understood that these officers were serving in the vessel during different periods of the year; or, in some instances, that a Surgeon was borne in lieu of an Assistant Surgeon.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Aboukir - -	West Indies -	Year - - -	Dr G. H. Ryan, S.; Dr. A. Crosbie, Act. S.; J. Coogan, S.; T. Kipling, A. S. and Act. S.
Achilles - -	Home - -	Year - - -	G. F. A. Drew, S.; E. B. Broster, A.S.; W. F. Ryall, A.S.; Dr. G. R. Pickthorn, A. S.
Acorn - -	China - -	Year - - -	G. B. Newton, S.; P. M. Roe, S.
Active - -	Home - -	Year - - -	T. Somerville, S. S.
Adventure -	China - -	Year - - -	W. H. Adam, S.; T. Purcell, A. S. and Act. S.; R. Purves, A. S.
Alert - -	Pacific - -	Year - - -	F. W. Davis, S.; J. Shields, A. S.
Algerine -	China - -	Year - - -	Dr. T. Redfern, A. S. in c.
Amazon - -	Irregular - -	30 April to 10 July	Dr. P. Mansfield, S.
Antelope -	Irregular - - West Coast of Africa.	12 July to 30 Sept. 1 Oct. to 31 Dec. -	Dr. J. S. Levis, A. S. in c.
Archer - -	Irregular - -	1 Jan. to 30 Jan. -	Dr. D. McN. Johnston, Act. S.
Arethusa -	Mediterranean -	Year - - -	J. J. Martin, S.; H. A. Close, A. S.; Dr. G. V. Wright, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Argus	China	Year	Dr. T. B. Purchas, S.; R. H. Carroll, S.; S. McBean, A. S.; J. N. Stone, A. S.
Asia	Home	Year	S. Wade, S.; J. Flanagan, S. in lieu of A. S.; W. Anderson, S. in lieu of A. S.; F. F. Flynn, A. S.; Dr. J. R. Burke, A. S.; Dr. J. B. Nicoll, A. S.
Assurance	Mediterranean	Year	C. Keenan, S.
Aurora	West Indies	Year	A. Irwin, S.; P. Keelan, A. S.; Dr. J. A. Macdonald, A. S.
Barracouta	Irregular West Indies	1 April to 30 June 1 July to 31 Dec.	C. R. Godfrey, S.; T. Hamilton, A. S.
Barrosa	China	Year	R. L. B. Head, S.; J. Mc K. Hollingsworth, A. S.
Basilisk	Irregular China	1 Jan. to 31 Mar. 1 Apr. to 31 Dec.	B. Browning, S.; Dr. G. Monteath, Act. S., and A. S.
Bellerophon	Home	1 Apr. to 31 Dec.	N. Littleton, S.; J. F. Fitzgerald, A. S.
Black Prince	Home	Year	W. Telfer, S.; Dr. G. Moore, S.; W. Roche, A. S.
Boscawen	Home	Year	Dr. J. Henderson, S. S.; H. Slade, S.; Dr. W. J. Baird, S. in lieu of A. S.; J. Mockridge, A. S.; E. B. Broster, A. S.
Brilliant	Home	Year	J. A. Miller, S. S.
Brisk	Australia	Year	J. Halpin, Act. S.; Dr. W. D. Smyth, S.; J. Cruickshank, A. S.
Bristol	West Coast of Africa. Irregular	1 Jan. to 30 Sept. 1 Oct. to 31 Dec.	W. G. J. Ayre, S.; T. L. Bickford, A. S.; Dr. F. Buckle, A. S.
Britannia	Home	Year	S. S. D. Wells, S. S.; J. Trimble, A. S.; Dr. T. Fulton, A. S.
Buzzard	West Indies	1 Jan. to 26 Nov.	W. J. Thomason, Act. S.; S. Terry, Act. S.
Cadmus	West Indies	Year	J. Johnstone, S.
Caledonia	Mediterranean Home	1 Jan. to 31 Mar. 1 Apr. to 31 Dec.	T. J. Breen, S.; E. T. Mortimer, S. in lieu of A. S.; M. Coates, A. S.; W. H. Stewart, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Cambridge	Home	Year	Dr. C. Forbes, S. S.; R. Creighton, S. in lieu of A. S.; F. Piercy, S. in lieu of A. S.; J. E. Dyas, S. in lieu of A. S.; Dr. J. Whitaker, A. S.; Dr. A. Robertson, A. S.; S. Sweetnam, A. S.
Cameleon	Irregular	1 Jan. to 28 April	Dr. A. Fisher, S.; Dr. A. Turnbull, A. S.
Canopus	Home	Year	Dr. T. Stratton, S. S.; W. H. Adam, S. in lieu of A. S.; T. Hamilton, A. S.; M. O. Hurlstone, A. S.
Caradoc	Mediterranean	Year	J. Bradley, A. S in c.
Castor	Home	Year	Dr. P. Digan, S.; Dr. R. Hastings, S. S.
Challenger	Irregular Australia	1 May to 30 Sept. 1 Oct. to 31 Dec.	Dr. A. Watson, S.; Dr. G. R. Pickthorn, A. S.
Chanticleer	Irregular	1 Jan. to 20 Feb.	M. P. S. Ward, S.
Clio	Pacific	Year	W. G. Hill, S.; Dr. J. Walsh, Act. S.; G. V. Hart, A. S.
Cockatrice	Mediterranean	1 Jan. to 8 Feb. 13 Apr. to 31 Dec.	M. O. Hurlstone, A. S. in c. A. I. Bolton, A. S. in c.
Columbine	Pacific	Year	Dr. J. W. S. Meiklejohn, S.; Dr. J. Walsh, A. S.
Conqueror	Irregular	1 Jan. to 21 Feb.	H. Hadlow, Act. S.; J. T. Comerford, A. S.
Constance	West Indies	Year	R. W. Begunt, S.; M. Trevan, A. S.; J. Stewart, A. S.
Coquette	China Irregular	1 Jan. to 30 Sept. 1 Oct. to 31 Dec.	F. F. Morgan, S.
Cordelia	West Indies	Year	T. R. Warren, S.; Dr. A. Mitchell, A. S.
Cormorant	China	Year	R. Eustace, S.; L. Lucas, Act. S.
Cossack	Mediterranean	Year	C. E. Playfair, S.; W. H. Bell, A. S.; R. Atkinson, A. S.
Cruiser	Irregular Mediterranean	1 Aug. to 30 Sept. 1 Oct. to 31 Dec.	Dr. A. McBride, S; W. H. Stewart, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Cumberland -	Home - -	Year - - -	L. J. Monteith, S.; G. Bellamy, S. in lieu of A. S.; J. C. Eastcott, S. in lieu of A. S.; R. Mungle, S. in lieu of A. S.; A. Murphy, A. S.; J. T. Comerford, A. S.; F. Egan, A. S. (Barracks); Dr. D. McIver, A. S.; J. Noble, A. S.
Curaçoa - -	Australia - -	1 Jan. to 30 Sept. -	Dr. R. Picken, S.; J. Halpin, A. S.; J. Waugh, A. S.
	Irregular - -	1 Oct. to 31 Dec. -	
Cygnet - -	West Indies -	Year - - -	C. C. Mitchinson, A. S. in c.
Dædalus -	Home - -	Year - - -	Dr. G. I. Willes, S.
Dart - -	Irregular - -	1 Sept. to 31 Dec. -	W. J. Inman, A. S. in c.
Dasher - -	Home - -	Year - - -	J. S. Barry, A. S. in c.
Dauntless -	Home - -	Year - - -	J. I. Acheson, S. S.; Dr. H. Fegan, A. S.
Dee - - -	Home - -	Year - - -	J. M. Hunter, A. S. in c.
Defence - -	Home - -	1 Jan. to 9 June -	C. F. A. Courtney, S.; Dr. J. Paterson, A. S.
Devastation -	Pacific - -	1 Jan. to 31 Mar. -	B. Gregory, Act. S.; Dr. E. B. Bogg, A. S.
	Irregular - -	1 April to 8 Aug. -	
Donegal - -	Home - -	Year - - -	A. Adams, S. S.; Dr. W. Inman, A. S.; Dr. W. Yarde, A. S.
Doris - -	Irregular - -	8 Feb. to 30 June -	Dr. H. Arnot, S.; C. J. Fennell, A. S.; T. Conry, A. S.
	West Indies -	1 July to 31 Dec. -	
Doterel - -	South-east Coast of America.	Year - - -	J. Bishop, A. S. in c.
Dromedary -	West Coast of Africa.	Year - - -	G. Duncan, A. S. in c.; H. Macdonnell, A. S. in c.
Duke of Wellington.	Home - -	Year - - -	Dr. H. Gimlett, S.; W. T. Wilson, S.; Dr. W. R. Bennett, A. S.
Duncan - -	West Indies -	Year - - -	J. Little, S.; T. T. Riordan, A. S.; A. G. Bain, A. S.
Eagle - -	Home - -	Year - - -	J. Bernard, S. S.
Eclipse - -	Australia - -	1 Jan. to 30 Sept. -	Dr. S. A. Willis, S.
	Irregular - -	1 Oct. to 31 Dec. -	
Egmont - -	South-east Coast of America.	Year - - -	J. C. Ingles, S.; R. B. O'Toole, A. S.; T. N. W. Colahan, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Endymion -	Irregular -	24 Sept. to 31 Dec.	W. E. O'Brien, S.; J. Trimble, A. S.
Enterprise -	Mediterranean -	Year - - -	J. Thomson, S.
Esk - -	Australia -	Year - - -	Dr. G. Duncan, S.; Dr. F. N. Manning, A. S.
Espoir - -	West Coast of Africa.	Year - - -	J. Lambert, A. S. in c.
Excellent - -	Home - -	Year - - -	Dr. G. Yeo, S.; Dr. W. H. Lloyd, S., in lieu of A. S.; Dr. G. B. Beale, A. S.; B. H. M'Curdy, A. S.
Falcon - -	Australia - -	Year - - -	P. W. Rolston, S.; J. Waugh, A. S.
Favorite - -	Irregular - -	8 Feb. to 30 June	J. R. Anderson, S.; A. Scott, A. S.
	West Indies -	1 July to 31 Dec.	
Fawn - - -	West Indies -	Year - - -	C. Morton, S.; W. Jones, A. S.
Ferret - -	Home - -	Year - - -	J. N. J. O'Malley, S.; E. B. Broster, A. S. in c.
Firefly - -	Mediterranean -	1 Jan. to 7 Feb. -	J. Flanagan, S.
Fisgard - -	Home - -	Year - - -	Dr. W. T. Domville, S. S.; Dr. C. K. Ord, S.; J. Hudson, S. in lieu of A. S.
Flora - -	West Coast of Africa.	Year - - -	A. S. Pratt, S.; G. Duncan, A. S.; Dr. J. Paterson, A. S.
Formidable -	Home - -	Year - - -	R. Pottinger, S. S.; Dr. R. Irvine, S.; T. W. Hughes, A. S.
Fox - -	Home - -	Year - - -	J. J. Ellis, A. S. in c.
Frederick William.	Home - -	Year - - -	Dr. E. Hgath[illegible]. S.; C. D. Shephard, S.; R. Humphrys, S., in lieu of A. S.; A. J. Bolton, A. S.; E. Meade, A. S.
Galatea - -	Irregular - -	1 Jan. to 23 Jan. -	T. G. Wilson, S.; R. C. M'Clement, A. S.; J. G. Milne, A. S.
Ganges - -	Home - -	Year - - -	Dr. J. T. Caddy, S.; F. M'Aree, S., in lieu of A. S.; W. J. Inman, A. S.
Gannet - -	West Indies -	Year - - -	Dr. G. V. Macdonogh, S.
Gibraltar -	Mediterranean -	Year - - -	C. M'Shane, S. S.; Dr. M. Rodgers, A. S.; Dr. W. Reid, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Gladiator -	Home - -	Year - - -	W. J. Eames, S.; P. Burgess, A. S.
Gleaner - -	South-east Coast of America.	Year - - -	H. S. Lauder, A. S. in c.
Greyhound -	West Coast of Africa.	Year - - -	A. Collins, S.; Dr. T. Fulton, A. S.; J. G. Milne, A. S.
Griffon - -	Irregular - West Coast of Africa.	1 July to 30 Sept. 1 Oct. to 3 Dec.	J. T. Comerford, A. S. in c.
Hastings -	Home - -	1 Jan. to 18 May -	Dr. G. Moore, S.
Hector - -	Home - -	Year - - -	Dr. W. Hoggan, S.; Dr. J. Henry, S.; W. Anderson, A. S.; Dr. W. Johnston, A. S.
Helicon - -	Home - -	Year - - -	Dr. W. Lockhart, A. S. in c.
Hesper - -	China - -	Year - - -	A. Brend, A. S. in c.
Hibernia -	Mediterranean -	Year - - -	T. R. Pickthorn, S. S.; F. Negus, S. S.; E. J. Butler, A. S.
Highflyer -	Cape - -	Year - - -	A. G. Robertson, A. S. and Act. S.; W. S. Roche, S.
Hydra - -	Mediterranean -	Year - - -	O. J. Llewellyn, S.
Icarus - -	Irregular - - China - -	7 Mar. to 30 Sept. 1 Oct. to 31 Dec.	J. W. Dobbin, S.; J. M. Campbell, A. S.
Implacable -	Home - -	Year - - -	F. Negus, S. S.; Dr. W. B. Dalby, S.; Dr. A. M'Bride, S., in lieu of A. S.; A. B. Johnson, A. S.; F. H. Browne, A. S.; J. Buckley, A. S.
Impregnable	Home - -	Year - - -	A. Murray, S. S.; W. B. Fegen, S. S.; J. L. Whitney, A. S.; G. W. J. Sutherland, A. S.
Indus -	Home - -	Year - - -	A. W. W. Babington, S.S.; Dr. A. L. Archer, S., in lieu of A. S.; Dr. H. H. Smith, S., in lieu of A. S.; J. G. Milne, A. S.; G. A. Campbell, A. S.
Industry -	Irregular - -	Year - - -	Dr. W. Yarde, A. S. in c.; W. Redmond, A. S. in c.
Insolent -	China - -	Year - - -	G. Clark, A. S. in c.
Investigator -	West Coast of Africa	Year - - -	R. J. Sweetnam, A. S. in c.
Irresistible -	Home - -	Year - - -	Dr. J. Andrews, S.; H. Macdonnell, A. S.; Dr. D. Mc N. Johnston, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Isis - -	West Coast of Africa.	1 Jan. to 20 March	Dr. R. Potter, A. S. in c.
Jackal - -	Home - -	Year - - -	Dr. T. Milne, A. S. in c.; C. H. Slaughter, A. S. in c.
Jaseur - -	West Coast of Africa.	Year - - -	Dr. P. W. Wallace, S.; Dr. T. D. Allison, A. S. in c.
Jason - -	Irregular - -	7 May to 30 June	Dr. W. H. Lloyd, S.; J. L. Whitney, A. S.
	West Indies -	1 July to 31 Dec.	
Landrail - -	West Coast of Africa.	Year - - -	Dr. T. O'Flaherty, A.S. in c.
Leander - -	Pacific - -	1 Jan. to 30 June	W. H. Clarke, S.; T. S. Burnett, A. S.; E. Mulcahy, A. S.
	Irregular - -	1 July to 17 Oct.	
Lee - -	West Coast of Africa.	1 Jan. to 15 July	J. Buckley, A. S. in c.
Leopard - -	China - -	1 Jan. to 30 June	J. Lilburne, S.; G. R. Lawrenson, A. S.
	Irregular - -	1 July to 29 Sept.	
Leven - -	China - -	1 Jan. to 22 Jan.	Dr. W. Pattullo, A. S. in c.
Liberty - -	Home - -	12 July to 31 Dec.	S. McBean, A. S. in c.
Lily - -	West Indies -	1 Jan. to 7 Nov. -	R. Mungle, S.; S. Sweetnam, Act. S.
Linnet - -	South-east Coast of America.	Year - - -	Dr. A. McDonald, A. S. in c.
Lion - -	Home - -	Year - - -	Dr. G. Mason, S.; N. T. Connolly, A. S.; E. P. Forrest, A.S.; B. Gregory, A. S.
Liverpool -	Home - -	Year - - -	H. M. Speer, S.; J. Hide, A. S.
Lizard - -	Home - -	Year - - -	G. Mair, A. S. in c.
Lord Clyde -	Home - -	1 June to 31 Dec.	Dr. H. Grale[illegible], S.; A. G. Colquhoun, A. S.
Lyra - -	Cape - -	Year - - -	R. Edwardes, S.
Mæander -	West Coast of Africa.	1 Jan. to 31 Jan. -	A. S. Pratt, S.
Malacca - -	Irregular - -	1 Jan. to 30 June -	W. H. Cruice, S.; S. Bamfield, A. S.
	Pacific - -	1 July to 31 Dec.	
Manilla - -	China - -	Year - - -	Dr. C. C. Wimberley, A. S. in c.; R. J. McMorris, A. S. in c.
Marines, Falkland.	South-east Coast of America.	Year - - -	W. F. MacClinton, S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Marines, Vancouver's.	Pacific - -	Year - - -	I. Hanbury, A. S. in c.
Marines, China and Japan.	Irregular - -	1 Jan. to 30 Jan. -	Dr. C. K. Ord, S.; A. Robertson, A. S.; G. M. Egles, A. S.
Marines, Somerset.	Australia - -	Year - - -	T. J. Haran, S.
Martin - -	Home - -	1 Jan. to 30 Sept.	Dr. R. Ferguson, A. S. in c.; J. Brown, A. S. in c.
Medusa - -	Home - -	Year - - -	Dr. E. Dann, A. S. in c.; Dr. J. R. Burke, A. S. in c.
Meeanee -	Irregular - -	1 Jan. to 1 Mar.	Dr. W. Ross, S.; Dr. A. Robertson, A. S.
Megæra - -	Irregular - -	Year - - -	T. McCarthy, S.; Dr. T. Brisbane, A. S.; R. G. Bird, A. S.
Mullet - -	Irregular - -	12 May to 30 June	Dr. T. Milne, A. S. in c.
	West Coast of Africa.	1 July to 31 Dec. -	
Mutine - -	Pacific - -	Year - - -	Dr. J. Martin, S.; Dr. W. Grant, A. S.
Narcissus -	South-east Coast of America.	Year - - -	Dr. F. W. Blake, S.; J. S. Dobbyn, A. S.; J. H. Martin, A. S.
Nassau - -	Irregular - -	27 July to 31 Dec.	Dr. S. Campbell, A. S. in c.
Nereus - -	Pacific - -	Year - - -	W. E. Dillon, A. S. in c.
Niger - -	West Indies -	Year - - -	Dr. C. A. Ducket, S.; J. D. Smith, A. S.
Nimble - -	West Indies -	Year - - -	Dr. D. Donovan, A. S. in c.; F. F. Flynn, A. S. in c.
Oberon - -	Irregular - -	1 Jan. to 30 June -	A. Hogg, A. S. in c.
	West Coast of Africa.	1 July to 31 Dec.	
Ocean - -	Irregular - -	31 July to 31 Dec.	J. Rorie, S.; J. May, A. S.; Dr. S. Davidson, A. S.
Octavia -	Cape - -	Year - - -	W. Graham, A. S. and Acting S.; D. M. Shaw, S.; H. N. M. Sedgwick, A. S.
Orontes -	Irregular - -	Year - - -	J. C. Sabben, S. S.; J. F. Kynsey, A. S.
Osborne -	Home - -	Year - - -	G. B. Hill, S.
Osprey - -	China - -	Year - - -	J. Caldwell, S.; G. H. Maunsell, Acting S.
Pallas - -	Home - -	5 Mar. to 31 Dec.	R. Creighton, S.; E. W. Leet, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Pandora - -	West Coast of Africa.	Year - - -	G. E. Farr, A. S. in c.
Pantaloon -	Cape - -	Year - - -	G. Maclean, A. S. and Acting S.; J. F. Mitchell, S.
Pearl - -	Irregular - -	14 May to 30 Sept.	J. T. Gabriel, S.; A. Mullan, A. S.
	China - -	1 Oct. to 31 Dec.	
Pelican - -	Mediterranean -	1 Jan. to 7 May	Dr. J. C. Messer, S.; A. C. Johnston, A. S.
Pelorus - -	China - -	Year - - -	Dr. A. McKenna, S.; Dr. R. Hay, A. S.
Pembroke -	Home - -	Year - - -	J. C. Walsh, S. S.; Dr. T. Seccombe, S.; Dr. D. O'Connor, A. S.
Penguin - -	Cape - -	Year - - -	C. J. Devonshire, A. S. in c.
Perseus - -	China - -	Year - - -	Dr. A. B. Messer, S.; Dr. W. M'Mahon, A. S.; Dr. J. Craw, A. S.
Peterel - -	Irregular - -	2 June to 30 Sept.	J. N. J. O'Malley, S.
	Cape of Good Hope.	1 Oct to 31 Dec. -	
Phœbe - -	Mediterranean -	1 Jan. to 29 June	R. D. Prichard, S.; J. Noble, A. S.; H. D. Stanistreet, A. S.
Pioneer - -	West Coast of Africa.	29 Aug. to 31 Dec.	C. Strickland, A. S. in c.
President -	Home - -	Year - - -	W. N. Brake, S.
Prince Albert	Home - -	24 Feb. to 10 Oct.	Dr. D. Finucane, S.
Prince Consort	Home - -	1 Jan. to 30 June	Dr. S. Bowden, S.; R. Atkinson, A. S.; Dr. R. Potter, A. S.
	Mediterranean -	1 July to 31 Dec.	
Princess Charlotte.	China - -	Year - - -	J. Frazer, A. S. in c.; Dr. C. C. Wimberley, A. S. in c.
Princess Royal	China - -	Year - - -	F. Y. Toms, S.; Dr. A. Goodall, A. S.; W. Doyle, A. S.
Psyche - -	Mediterranean -	Year - - -	Dr. T. Warden, A. S. in c.
Pylades - -	West Indies -	1 Jan. to 7 Nov. -	H. Harkan, S.; Dr. J. Horrocks, A. S.
Racer - -	Mediterranean -	Year - - -	W. Roche (b.), S.; Dr. T. D. A. Bromlow, A. S.
Racoon - -	Irregular - -	Year - - -	Dr. J. Young, S.; Dr. P. Mansfield, S.; J. Wilson, A. S.; W. L. Powell, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Ranger - -	West Coast of Africa.	Year - - -	Dr. H. B. Craig, A. S. in c.; W. D. Wodsworth, A. S. in c.
Rapid - -	Cape - -	Year - - -	D. G. Pendrith, S.; W. Harvey, A. S.
Rattler - -	China - - -	Year - - -	Dr. R. Hague, S.; R. Purves, Act. S.; B. H. M'Curdy, A. S.; A. W. Whitley, A. S.
Rattlesnake -	Irregular - -	1 Jan. to 6 Feb. -	S. Clift, S.; E. Meade, A. S.
Reindeer -	Irregular - -	5 Nov. to 31 Dec.	J. C. Eastcott, S.; Dr. E. Dann, A. S.
Research -	Home - -	Year - - -	Dr. T. Coghlan, S.; W. B. Fletcher, A. S.
Resistance -	Mediterranean -	Year - - -	R. C. Scott, S.; D. R. Alcock, A. S.
Revenge - -	Home - -	Year - - -	Dr. A. Brown, S.; J. May, A. S.; H. D. Stanistreet, A. S.
Rifleman -	China - -	Year - - -	D. M'Carthy, A. S. in c.; J. A. Gaven, A. S. in c.
Rinaldo - -	Irregular - -	21 Nov. to 31 Dec.	W. G. Ridings, S.; R. Beamish, A. S.
Rosario - -	West Indies -	1 Jan. to 13 Oct.	W. F. C. Bartlett, S.; J. Mulvany, A. S.
Royal Adelaide	Home - -	Year - - -	W. R. Dalton, S. S.; J. N. Dick, S., in lieu of A. S.; Dr. D. Finucane, S., in lieu of A. S.; C. H. Slaughter, A. S.; A. Mullan, A. S.; W. P. Clapp, A. S.; Dr. T. D. Allison, A. S.
Royal Geo[illegible] -	Home - -	Year - - -	Dr. H. Trevan, S. S.; Dr. A. J. Ireland, A. S.
Royalist - -	West Indies -	Year - - -	J. Fisher, S.; J. P. Way, A. S.
Royal Oak - -	Mediterranean -	Year - - -	J. Jack, S.; Dr. E. J. Sharood, A. S.; Dr. H. C. Woods, A. S.
Royal Sove[illegible]gn	Home - -	1 Jan. to 10 Oct. -	J. Elliott, S.
St. George - -	Home - -	Year - - -	Dr. W. Macleod, S.; Dr. P. Digan, S.; J. W. Arnott, A. S.; Dr. W. M'Mahon, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
St. Vincent -	Home - -	Year - - -	J. Cockin, S. S.; C. F. Williams, A. S.
Salamander -	Australia - -	Year - - -	Dr. A. Rattray, S.; R. Cannon, A. S.
Salamis - -	Irregular - -	1 Jan. to 30 June	G. H. Maunsell, A. S. in c.
	China - -	1 July to 31 Dec. -	J. Frazer, A. S. in c.
Satellite - -	Irregular - -	8 Nov. to 31 Dec. -	J. N. Dick, S.; E. Meade, A. S.
Saturn - -	Home - -	Year - - -	R. W. Clarke, S. S.; T. R. Pickthorn, S. S.
Scout - -	Pacific - -	Year - - -	J. Sproule, S.; Dr. W. Carmichael, A. S.
Scylla - -	China - -	Year - - -	W. Edney, S.; W. Carleton, A. S.
Sealark - -	Home - -	Year - - -	F. H. Browne, A. S. in c.; J. F. Parr, A. S. in c.
Seringapatam -	Cape - -	Year - - -	E. Olive, A. S. in c.
Serpent - -	China - -	Year - - -	T. H. Taylor, S.
Severn - -	Irregular - -	1 Jan. to 12 June -	H. Loney, S.; Dr. J. R. Burke, A. S.
Sharpshooter -	South-east Coast of America.	Year - - -	G. W. L. Harrison, A. S. in c.
Shearwater -	Pacific - -	Year - - -	E. H. Evans, S.; T. S. Burnett, Acting S.; Dr. A. Yule, A. S.
Simoom - -	Irregular - -	2 Feb. to 31 Dec. -	C. Sproull, S.; Dr. E. L. Moss, A. S.
Slaney - -	China - -	Year - - -	W. M. Powe[illegible] S. in c.
Snipe - -	West Coast of Africa.	Year - - -	Dr. E. W. Co[illegible]an, A. S. in c.
Sparrow -	West Coast of Africa.	1 Jan. to 26 Aug.	W. Redmond, [illegible] S. in c.
Sparrowhawk -	Pacific - -	Year - - -	P. Comrie, S.
Speedwell -	West Coast of Africa.	Year - - -	Dr. P. W. Wallace, S.; G. Curtis, A. S. in c.
Sphinx - -	West Indies -	Year - - -	Dr. J. L. Sands, S.; J. Stewart, A. S.; W. J. Thomason, A. S.; P. Cowen, A. S.; Dr. W. J. Rankin, A. S.
Spider - -	South-east Coast of America.	Year - - -	A. A. Mullin, A. S. in c.; A. B. Johnson, A. S. in c.

SHIPS.	STATIONS.	PERIODS.	NAMES OF MEDICAL OFFICERS.
Spiteful	South-east Coast of America.	Year	Dr. D. Hilston, S.; W. D. Longfield, A. S.
Squirrel	Home	Year	Dr. T. Cann, A. S. in c.
Star	Irregular Irrrgular	5 Feb. to 1 June 24 Oct. to 31 Dec.	J. N. J. O'Malley, S.; Dr. W. R. Bennett, S.
Steady	West Indies	1 Jan. to 30 Sept.	W. H. Cox, A. S. in c.
Stromboli	Irregular	1 Jan. to 8 June	E. T. Mortimer, S.; Dr. S. Davidson, A. S.
Supply	Irregular	Year	C. Strickland, A. S. in c.; N. T. Connolly, A. S. in c.; Dr. W. M'Mahon, A. S in c.
Surprise	Mediterranean	1 Jan. to 24 April	J. E. Dyas, S.
Sutlej	Pacific	Year	W. Patrick, S.; T. H. Atkinson, A. S.; Dr. T. Browne, A. S.
Swallow	China Irregular	1 Jan. to 30 June 1 July to 30 Sept.	Dr. J. B. Nicoll, A. S. in c.
Sylvia	Irregular	16 Oct. to 31 Dec.	J. Murphy, S.
Tamar	Irregular	Year	Dr. J. Long, S.; J. Allen, A. S.
Terrible	Irregular	Year	Dr. W. Fasken, S.; J.A. Hatch, A. S.
Terror	West Indies	Year	Dr. A. Crosbie, A. S. in c.; J. T. Moore, A. S. in c.
Topaze	Irregular Pacific	26 Jan. to 30 June 1 July to 31 Dec.	J. L. Palmer, S.; Dr. T. Jameson, A. S.; C. B. Greenfield, A. S.
Torch	West Coast of Africa.	Year	J. Donovan, A. S. in c.
Trafalgar	Home	Year	Dr. A. Graham, S. S.; Dr. J. Thomson, S. S.; Dr. D. M'Ewan, S. in lieu of A. S.
Tribune	Irregular	1 Jan. to 15 May	Dr. R. Irvine, S.; W. P. Clapp, A. S.
Trincomalee	Home	Year	J. Ward, S.; D. J. I. Crawford, S. S.
Triton	South-east Coast of America.	Year	G. Bolster, A. S. in c.
Tyrian	Mediterranean	Year	J. W. Ashford, A. S. in c.; Dr. H. C. Woods, A. S. in c.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Urgent - -	Irregular - -	Year - - -	Dr. F. H. Blaxall, S.; G. Kell, A. S.
Valorous -	Cape - -	Year - - -	J. Murphy, S.; S. Grose, Act. S.; J. G. Clarke, A. S.
Victoria - -	Mediterranean -	Year - - -	J. G. T. Forbes, S.; J. A. Skene, A. S.; Dr. J. Pringle, A. S.
Victoria and Albert.	Home - -	Year - - -	Dr. J. M. Minter, D. I. G.
Victory - -	Home - -	Year - - -	Dr. J. W. Reid, S. S.; T. G. Wilson, S. in lieu of A. S.; C. R. Godfrey, S. in lieu of A. S.; B. Browning, S. in lieu of A. S.; T. N. W. Colahan, A. S.
Vigilant - -	Cape - -	Year - - -	W. S. Fisher, Act. S.; G. Jackson, S.
Vindictive -	West Coast of Africa.	Year - - -	J. Lambert, A. S. in c.; J. Mockridge, A. S. in c.
Virago - -	Irregular -	1 Dec. to 31 Dec.	E. H. Evans, S.; M. O. Hurlstone, A. S.
Vixen - -	Irregular - -	28 Oct. to 31 Dec.	Dr. A. Robertson, A. S. in c.
Wasp - -	Cape - -	Year - - -	W. E. O'Brien, S.; Dr. J. A. Allan, Act. S. and A. S.; W. Anderson (a), S.
Wellesley -	Home - -	Year - - -	H. Piers, S. S.; C. J. Fennell, A. S.; R. C. McClement, A. S.
Winchester -	Home - -	Year - - -	Dr. P. Marty, S.; Dr. W. Ross, S.
Wivern - -	Home - -	Year - - -	W. T. Billings, S.; F. Piercy, S.; J. Brown, A. S.
Wizard - -	Mediterranean -	15 July to 31 Dec.	J. W. Arnott, A. S. in c.; Dr. W. Inman, A. S. in c.
Wolverene -	West Indies -	Year - - -	D. Wilson, S.; S. Terry, A. S.
Zealous - -	Irregular - -	18 Sept. to 31 Dec.	Dr. M. Burton, S. S.; Dr. J. Simpson, A. S.; A. S. Crowdy, A. S.

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